

Hewlett Packard

HP Server rx9610 Test and Diagnostics Operation Manual



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USA

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Term and abbreviation list

Terms and abbreviations	Description
I-Ciser	The Test & Diagnostic program of the rx9610 system.
DMA	<u>D</u> irect <u>M</u> emory <u>A</u> ccess
EFI	<u>E</u> xtensible <u>F</u> irmware <u>I</u> nterface
HDD	<u>H</u> ard <u>D</u> isk <u>D</u> rive
KB	<u>K</u> ey <u>B</u> oard
PCI	<u>P</u> eripheral <u>C</u> omponent <u>I</u> nterconnect Name of 32/64-bit bus installed in target server.
RTC	<u>R</u> eal <u>T</u> ime <u>C</u> lock
SIO	<u>S</u> erial <u>I</u> / <u>O</u>
VGA	<u>V</u> ideo <u>G</u> raphics <u>A</u> rray

1 Common Operation Method

1.1 Used equipment

Table 1.1 lists the configuration required for executing test and diagnostic program I-Ciser for the rx9610 system.

Table 1.1 Require configuration equipment list

Used equipment	Required quantity	Purpose
Body	1	-----
CPU	1 or more	For program execution
Memory	512 MB or more	Storage of program
DVD-ROM	1 (built-into system)	Load program
CRT	1	Input and output of message
Keyboard	1	Input of operation

1.2 Execution mode overview

Table 1.1 lists the execution mode of the tests supported by I-Ciser.

In the current version, only "PROMPTED" execution mode is available.

Table 1.1 Execution mode of test supported by I-Ciser

Execution mode	Overview
END-USER (END-USER execution mode)	Selects/executes the test conducted in the Custom Setup “system diagnosis”. This mode is not available in the current version.
MAINTENANCE TEST (MAINTENANCE execution mode)	Executes the test item for a check in the standard configuration at the field. This mode is not available in the current version.
INSPECT (inspect execution mode)	Executes the test item for a check at the inspection division before shipment. This mode is not available in the current version.
PROMPTED (prompted execution mode)	Executes the combination of each test item selected by the operator.

1.3 Test item

Table 1.1 lists the test item supported in current version.

Table 1.1 Support test item I-Ciser (1/2)

No	Test item	Process name	Execution mode			
			SIMPLE	MAINTENANCE	INSPECT	PROMPTED
1	AzusA Chip-set TEST	ACTIVE			S	Nothing is initially selected and the user is to make a selection optionally.
2	MEMORY UPPER TEST	MEMORY UPPER	S	S		
3	MEMORY LOWER TEST	MEMORY LOWER	S	S		
4	CACHE UPPER TEST	CACHE UPPER	S	S	S	
5	CACHE LOWER TEST	CACHE LOWER	S	S	S	
6	NvRAM TEST	NvRAM		S	S	
7	DATA PATTERN TEST	DATA PATTERN				
8	XTPR TEST	XTPR				
9	SHARED MEMORY TEST	SHARED MEMORY				
10	KEYBOARD TEST	KEYBOARD			S	
11	MOUSE TEST	MOUSE			S	
12	PARALLEL TEST	PARALLEL			S	
13	COM TEST *1	COM			S *3	
14	USB TEST *2	USB			S *3	
15	IDE TEST	IDE	S	S	S	
16	SCSI (ADP) TEST	PCI-SCSI (ADP)	S *3	S *3	S *3	
17	SCSI (NCR) TEST	PCI-SCSI (NCR)	S *3	S *3	S *3	
18	SCSI (QLG) TEST	PCI-SCSI (QLG)	S *3	S *3	S *3	
19	PCI-ETHER (DEC) TEST	PCI-ETHER (DEC)	S	S	S	
20	PCI-ETHER (Intel) TEST	PCI-ETHER (Intel)	S	S	S	
21	PCI-ETHER (Alteon) TEST	PCI-ETHER (Alteon)	S	S	S	
22	PCI-FCAL(AGL)TEST	PCI-FCAL(AGL)				
23	PCI-FCP(QLG)TEST	PCI-FCP(QLG)				

*1 : PARALLEL TEST does not support a real device such as printer in current version.

- can test only "normal loopback test" with the loop-back connector.

- can not test "CT loopback test " as this test requires special loopback tester.

*2 : COM TEST does not support a device such as a modem in current version.

- can test "internal loopback test" without any connectors.

- can also test "external loopback test " with the loopback connector.

*3 : USB TEST does not support a device such as keyboard in the current version.

- can not test USB TEST as this test requires a special USB tester.

2 Operation Method

2.1 Startup operation

Figure 2.1 illustrates the I-Ciser execution sequence.

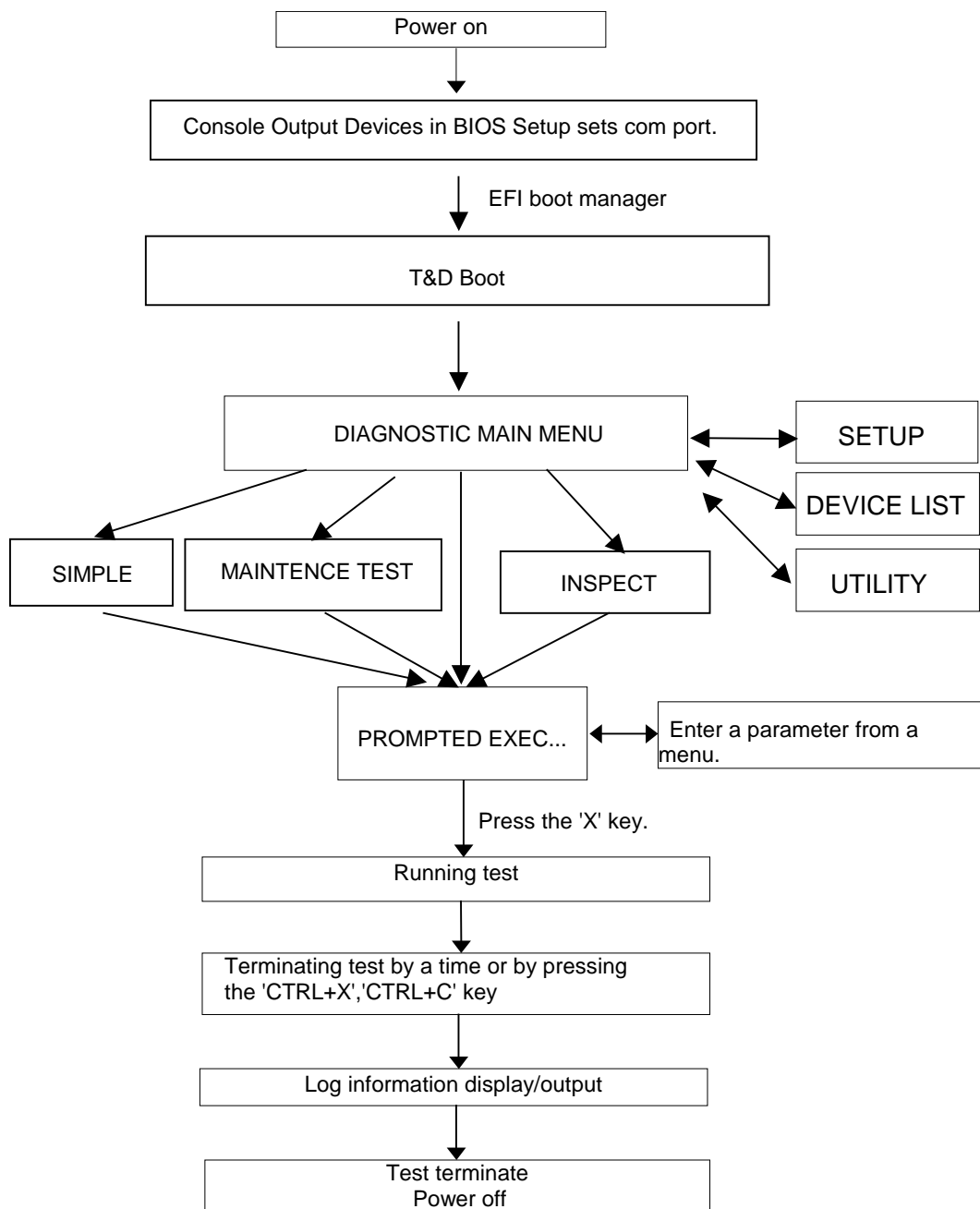


Figure 2.1 I-Ciser execution sequence

2.2 Operation before running test

2.2.1 DIAGNOSTIC MAIN MENU

In the “DIAGNOSTIC MAIN MENU” in **Error! Not a valid bookmark self-reference.2**, you can set the operation mode of a test.

DIAGNOSTIC MAIN MENU
SIMPLE EXECUTION
MAINTENANCE TEST EXECUTION
INSPECT EXECUTION
PROMPTED EXECUTION
SETUP
DEVICE LIST
UTILITY

Figure 2.1 DIAGNOSTIC MAIN MENU

2.2.2 SETUP MENU

In the “SETUP MENU” in Figure 2.1, you can determine if a slave CPU is available and select a test and diagnostic execution time.

SETUP	
*1	(PRST)Processor ready status
*2	(TIME)Diagnostic:___8min
*3	(KB) KB Type : 109
*4	(ECHK)Error check : OFF
*5	(EWIN)Change Window:ON
Deselect: Press Enter	
Press ESC key to return	

Figure 2.1 SETUP MENU

- Select any item with up and down arrow keys and by pressing the 'Enter' key.
- Pressing the 'ESC' key returns the display “DIAGNOSTIC MAIN MENU”.

*1: Open the Processor status window.

Select either “ENABLE” or “DISABLE” by pressing the “Enter” key.

Processor status	
00	Not Ready (DISABLE)
01	Not Ready (DISABLE)
02	Ready (ENABLE)
03	Current (ENABLE)
04	Current (ENABLE)
05	Current (ENABLE)
06	Current (ENABLE)
07	Ready (ENABLE)
08	Ready (ENABLE)
09	Not Ready (DISABLE)
10	Not Ready (DISABLE)
11	Not Ready (DISABLE)
12	Not Ready (DISABLE)
13	Not Ready (DISABLE)
14	Not Ready (DISABLE)
15	Not Ready (DISABLE)
(END) Select End	
Return to SETUP Window	

Figure 2.2 Processor status window

- *2: Set a test time. Settings are in units of minutes. Setting the test time to “0”, causes the test to run without a time limit.
- *3: The Keyboard Type can be selected from “109” and either “104” or “A-VX”.
- *4: If an error occurs when the test is terminated, Specify whether or not to display the check request menu if an error should occur when the test is terminated.
- *5: Specify if the display is to change automatically to the page displaying the error when an error is detected.

2.2.3 DEVICE LIST

- The system configuration is displayed in the DEVICE LIST screen shown in Figure 2.1.

DEVICE LIST									
: : : : : : : : : :									
: : : : : : : : : :									
: : : : : : : : : :									
: : : : : : : : : :									

Figure 2.1 DEVICE LIST

- Pressing the up, down, page up, page down, home, end arrow keys scroll the screen.
- The current screen location is indicated with a scroll bar.
- Pressing the 'ESC' key returns the "DIAGNOSTIC MAIN MENU" screen.

2.2.4 HISTORY MENU

Selecting “HISTORY” in the “DIAGNOSTIC MAIN MENU” shown in In the “DIAGNOSTIC MAIN MENU” in **Error! Not a valid bookmark self-reference.2**, you can set the operation mode of a test.

DIAGNOSTIC MAIN MENU
SIMPLE EXECUTION
MAINTENANCE TEST EXECUTION
INSPECT EXECUTION
PROMPTED EXECUTION
SETUP
DEVICE LIST
UTILITY

Figure 2.1, causes the “Select operation mode” display shown in Figure 2.1 to be displayed. Saving the key history to a floppy disk allows the key operation previously executed can be replicated. The operation method of the HISTORY function is shown below.

Select operation mode	
Execution	← Reproducing the Key history
History save	← Saving the key history
Cancel	

Figure 2.1 HISTORY MENU

Execution of HISTORY

Selecting “Execution” in Figure 2.1 causes the “HISTORY FILE SELECT MENU” in Figure 2.1 to be displayed. In the menu, a name of HISTORY previously saved is displayed. Selecting the HISTORY name to be executed causes the key operation to be replicated. When a HISTORY file does not exist, “History file was not found” is displayed.

Select History file
WIDE SCSI
ALL TEST
SCSI & MEMORY
Exit

Figure 2.1 HISTORY FILE SELECT MENU

Save HISTORY

Selecting “History save” in Figure 2.1 causes the “HISTORY FILE SELECT MENU” in Figure 2.1 to be displayed. The item displayed is the HISTORY name of the key history file previously saved.

Select Save file
WIDE SCSI
ALL TEST
SCSI & MEMORY
NEW file
NEW file
...
...
Exit

Figure 2.1 HISTORY FILE SELECT MENU

- Select the location where a key history is saved.
- Up to 10 files can be registered.

Selecting either of the items in Figure 2.1 causes the “HISTORY SAVE MENU2” in Figure 2.2 to be displayed. When the file name that has been saved is selected, a comment regarding the select item is shown. When “NEW file” is selected nothing is shown. After making an entry return to the “DIAGNOSTIC MAIN MENU” shown in In the “DIAGNOSTIC MAIN MENU” in **Error! Not a valid bookmark self-reference.2**, you can set the operation mode of a test.

DIAGNOSTIC MAIN MENU
SIMPLE EXECUTION
MAINTENANCE TEST EXECUTION
INSPECT EXECUTION
PROMPTED EXECUTION
SETUP
DEVICE LIST
UTILITY

Figure 2.1. The key operation from this time on is recorded until the execution key ‘x’ is depressed.

Enter comment
WIDE SCSI
ESC : Cancel

Figure 2.2 HISTORY SAVE MENU2

2.2.5 PROMPTED EXECUTION MENU

Selecting "PROMPTED EXECUTION" in the "DIAGNOSTIC MAIN MENU" shown in In the "DIAGNOSTIC MAIN MENU" in **Error! Not a valid bookmark self-reference.2**, you can set the operation mode of a test.

DIAGNOSTIC MAIN MENU
SIMPLE EXECUTION
MAINTENANCE TEST EXECUTION
INSPECT EXECUTION
PROMPTED EXECUTION
SETUP
DEVICE LIST
UTILITY

Figure 2.1 causes the "PROMPTED EXECUTION MENU" to be displayed as shown in Figure 2.1.

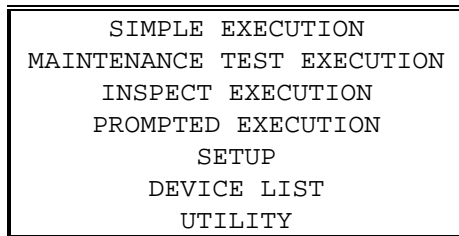
PROMPTED EXECUTION	
. ACTIVE	. MEMORY UPPER
. MEMORY LOWER	. CACHE UPPER
. CACHE LOWER	. NvRAM
. WDT	. XTPR
. IOTLB	. SHARED MEMORY
. KEYBOARD	. MOUSE
. PARALLEL	. COM
. USB	. IDE
. PCI-SCSI(NCR)	. PCI-SCSI(ADP)
. PCI-SCSI(QLG)	. PCI-ETHER(DEC)
. PCI-ETHER(Intel)	. PCI-ETHER(Alteon)
Enter: (de)select test	
'X' : execution test	
ESC : cancel	
OTHER: input parameter	
<div></div>	

} Test selection Window

Figure 2.1 PROMPTED EXECUTION MENU

- To select any test item, move the reverse video using the up and down and left and right arrow keys then press the 'Enter' key.
- When the test item is selected, a check mark ('x') is indicated in a check box (☐) on the left of the test name.
- When the selected test item requires an input parameter, an input reply menu corresponding to the test is displayed and the parameter can be entered. After entering each parameter, pressing the 'Enter' key returns the display to the "PROMPTED EXECUTION MENU" as shown in Figure 2.1.
- Pressing the 'ESC' key cancels the information selected and puts the display back to the "DIAGNOSTIC MAIN MENU" display as shown in In the "DIAGNOSTIC MAIN MENU" in **Error! Not a valid bookmark self-reference.2**, you can set the operation mode of a test.

DIAGNOSTIC MAIN MENU



- Figure 2.1.
- When the point ('☐x') to which a check mark has been already attached is selected again, the check mark at that point is made ineffective.
- Pressing the 'X' key starts the test run.

2.3 Operation during test execution

2.3.1 Image of screen during test execution

Figure 2.1 shows the image of the screen during test execution.

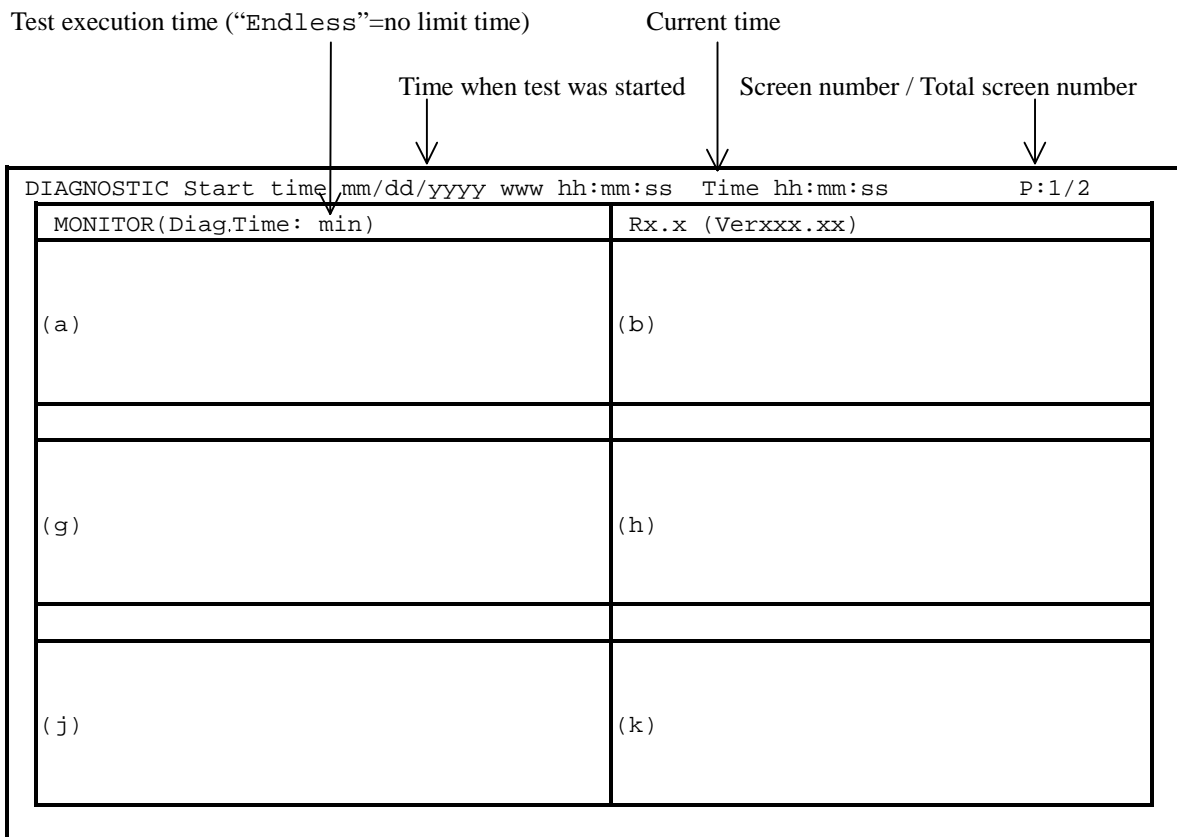


Figure 2.1 Image of screen during test execution

- Displays up to 6 windows on the screen.
Window (a) is the monitor process window managing entire I-Ciser.
[Window \(b\) has no meaning in the current version.](#)
Other windows are individual windows for each test process.

2.3.2 Test process individual window

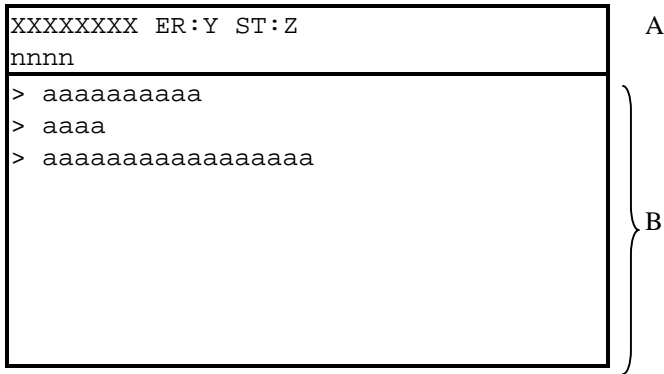


Figure 2.1 Test process individual window

A: Header part of test process window

Green header indicates normal and red indicates that an error was detected.

XXXXXXXX:	Process name												
Y:	Error occurrence count												
nnnn:	Test execution count												
	When the execution count exceeds 9999, the value returns to 0.												
Z:	Process status												
	<table> <tr> <td>"S"</td><td>The process is halted for some error.</td></tr> <tr> <td>"0" to "F"</td><td>Processor of the number indicated executes process.</td></tr> <tr> <td>"R"</td><td>The process is in a ready state.</td></tr> <tr> <td>"W"</td><td>The process is in a wait state.</td></tr> <tr> <td>"T"</td><td>The process was terminated normally.</td></tr> <tr> <td>"?"</td><td>The process is in a state other than above.</td></tr> </table>	"S"	The process is halted for some error.	"0" to "F"	Processor of the number indicated executes process.	"R"	The process is in a ready state.	"W"	The process is in a wait state.	"T"	The process was terminated normally.	"?"	The process is in a state other than above.
"S"	The process is halted for some error.												
"0" to "F"	Processor of the number indicated executes process.												
"R"	The process is in a ready state.												
"W"	The process is in a wait state.												
"T"	The process was terminated normally.												
"?"	The process is in a state other than above.												

B: Message display area of test process window

aaaaaaa: Message displayed by test process

2.3.3 Key operation and function during test execution

The page currently being displayed can be switched to more than one page by using the 'Page Up' key and 'Page Down' key,

2.3.4 UTILITY MENU

When "UTILITY" is selected from "DIAGNOSTIC MAIN MENU" of In the "DIAGNOSTIC MAIN MENU" in **Error! Not a valid bookmark self-reference.2**, you can set the operation mode of a test.

DIAGNOSTIC MAIN MENU
SIMPLE EXECUTION
MAINTENANCE TEST EXECUTION
INSPECT EXECUTION
PROMPTED EXECUTION
SETUP
DEVICE LIST
UTILITY

Figure 2.1, “UTILITY MENU” appears as shown in Figure 2.1 so that you can select the utility provided by I-Ciser. When you selected “CANCEL”, the utility menu ends.

(UTL)UTILITY MENU
(DFD) HDD FW download
(CANCEL)

Figure 2.1 UTILITY MENU

- When you update the firmware of hard disks, you select “HDD FW download” in this menu. After selecting “HDD FW download”, “PCI SLOT SELECT” menu is displayed.
- When you select “CANCEL”, “DIAGNOSTIC MAIN MENU” is displayed.

2.3.4.1 HDD FW download

“HDD FW download” is HP Corporation specific function.

Supported device

Following table shows the supported device list of “HDD FW download”.

Table 2.1 supported device list of HDD FD download

	Vender Name	Device Name	Capacity
.	Seagate	ST318404LC	18.4GB
.	Seagate	ST336704LC	36.7GB
.	Seagate	ST373405LC	73.4GB
.	Fujitsu	MAN3184MC	18.4GB
.	Fujitsu	MAN3367MC	36.7GB
6	Fujitsu	MAN3735MC	73.5GB

Support medium

“HDD FW download” function supports DAT and CD-ROM(CD-R/CD-RW) as a medium that includes Firmware file to be downloaded.

Note : “HDD FW download” supports only HP specific Firmware file that contains HP specific header file.

(a) How to make DAT

To make DAT that contains Firmware file to be downloaded, use UNIX “tar” command.

Example) tar -cvf /dev/rmt/xx filename filename

Note 1: Do not specify directory in tar command.

Note 2: Do not specify option “b” in tar command.

(b) How to make CD-ROM(CD-R/CD-RW)

To make CD-ROM(CD-R/CD-RW) that contains Firmware file to be downloaded, use ISO9660 format.

Operation

When an operator selects “HDD FW download” in “UTILITY MENU”, “Input Password” window is displayed as shown in below.

(PSW) Enter password
<input type="text"/>
ESC : Cancel

← Enter password

- Do not disclose the password to the general operator.

When an operator inputs a correct password in “Input Password” window, “Select PCI slot for DOWNLOAD” menu is displayed as shown in below.

(SEL) Select PCI slot for DOWNLOAD
(END) Select end
(#1) Slot 1[NCR]
(#2) Slot 2[AGL]

← Terminate selection

- Slot name and type of card are displayed.

When an operator selects PCI slot in “Select PCI slot for DOWNLOAD” menu, “Select device” menu is displayed as shown in below.

(ID) Select device for DOWNLOAD
(#00) ID.0 : SEAGATE ST318404LC HP00: Pass
(#01) ID.1 : SEAGATE ST318404LC HP00: Fail
(#02) ID.2 : SEAGATE ST318404LC HP00: ----
(#03) ID.3 : Fujitsu MAN3184MC HP03: ----
(END) Select end

← Terminate selection

- SCSIID, device name and result of execution are displayed.
- The execution result shows the following status.
Pass: Normal termination
Fail: Abnormal termination
----: Not executed yet or not supported device

When an operator selects target device in “Select device” menu, “Enter file name” window is displayed as shown in below.

(FILE) Enter file name
<input type="text"/>
ESC : Cancel

← Enter Firmware data file name to be downloaded

- Enter file name of Firmware data to be downloaded from DAT or CD-ROM(CD-R/CD-RW).
Default specification of device is DAT.
DAT - enter “DAT:xxxx” or “xxxx” xxxx : file name
CD-ROM(CD-R/CD-RW) - enter “CD:xxx” xxxx : file name
- If an operator press “ESC” in this window, “Select device” menu is displayed.

After inputting a file name, the following warning message window is displayed to confirm the Version and Product ID of new Firmware to be downloaded and the Version and Product ID of current Firmware in ROM.

(WRN) Warning	
Do you continue download?	
Firmware Ver: (HP 36.4G) Firmware ProdId: (MAN3367MC)	
)	
Actual Ver: (FUJITSU)	Actual ProdId: (MAN3367MC)
)	
NO	YES

When an operator continues download of Firmware, the following window is displayed.

(INF) Information	
Do you really download firmware file? (HP00 -> HP01)	
NO	YES

When an operator selects YES, the following window is displayed as shown in below.

(LOG) Do you want to output Error Logs?
(YES)
(NO)

If an operator needs an error log, an operator specifies a log output destination in the following window.

(SEL) Select Device for outputting logs	
(CM1) Com1	← Outputs the log to COM1 port
(CM2) Com2	← Outputs the log to COM2 port
(CANCEL)	

- When CANCEL is selected, Firmware download is executed without setting a log output destination.

After above-mentioned operation, Firmware data in a ROM of the DISK will be updated. The result of execution is displayed in “Select device” menu.

Standard message

(c) Initializing CD-ROM device

The following message is output while the CD-ROM device is initialized.

```
[ Now Preparing CD-ROM ]  
Just a wait...
```

(d) Reading file

The following message is output while the Firmware data file is read from DAT or CD-ROM (CD-R/CD-RW).

```
[ Now Reading File ]  
Just a wait...
```

(e) Updating Firmware

The following message is output while the Firmware is updated.

```
[ Now Updating Firmware ]  
Just a wait...
```

Error message

(f) Device search error

The following message is output when a device search error was detected.

```
ERR:Serch SCSI device and set data error
```

(g) File open error

The following message is output when a file open error for the Firmware data file was detected.

```
ERR:xx...x File open error. yy...y
```

xx...x file name yy...y log data

(h) File length error

```
ERR:File Read Length Err: xx...x Length: yy...y
```

xx...x file name yy...y length

(i) Data read error

The following message is output when a data read error was detected while the Firmware data is read.

```
ERR:xx...x File read error. yy...y
```

xx...x file name yy...y log data

(j) Write Buffer command error

The following message is output when an error in Write Buffer command was detected.

```
EER:WriteBuffer command failed for xx...x.  
yy...y
```

xx...x inquiry data yy...y vender ID

(k) Firmware file error

The following message is output when an error in Firmware file was detected.

```
ERR:xx...x is invalid firmware file. yy...y
```

xx...x file name yy...y logdata

(l) DISK not detected error

The following message is output when a DISK was not detected.

```
ERR:Disk not detected. Can not execute.
```

(m) SCSI command error

The following message is output when an error in SCSI command was detected.

```
SCSI request completed with error.  
Check condition. (Illegal request)  
(Parameter value invalid)  
Key = 5, ASC = 26, ASCQ = 02  
70 00 05 00 00 00 00 0a  
00 00 00 00 26 02 00 00  
SCSI ID 0 / LUN 0  
CDB: 15 11 00 00 10 00
```

(Example)

2.4 Test termination

2.4.1 Automatic test termination at expiration of execution time

The test automatically terminates at the expiration of the execution time. At that time, if any test is in the midst of execution, the system waits for the termination of that test before terminating.

2.4.2 Manual test termination

Pressing the 'CTRL' + 'ALT' + 'DEL' keys simultaneously allows the test execution to be forcibly terminated. At that time, if any test is in the midst of execution, the system waits for the termination of that test before terminating.

2.4.3 Automatic termination when no executable test item exists

When the selected test terminates as a result of the factors below and no other test is being executed, the test automatically terminates.

- When test executes the number of times specified in advance.
- When a critical error was detected during test execution and the test was abnormally terminated

2.4.4 When an error occurred at the time of test execution by selecting an error check mode

If a test was conducted by setting the ERROR CHECK MODE to ON in a SETUP menu and an error was detected among the executed test items, the window shown in Figure 2.1 is displayed.

Once this window is displayed, termination cannot be performed until "cancel" is entered.

Error occurred and stopped, EXIT key-word is 'cancel'
<div></div>
ESC : Cancel

Figure 2.1 Error occurrence check window

2.5 Operation after test termination

2.5.1 Image of screen after test termination

When execution of all test items terminates, a target scope is shown in the monitor process window. Figure 2.1 shows the screen image after test termination.

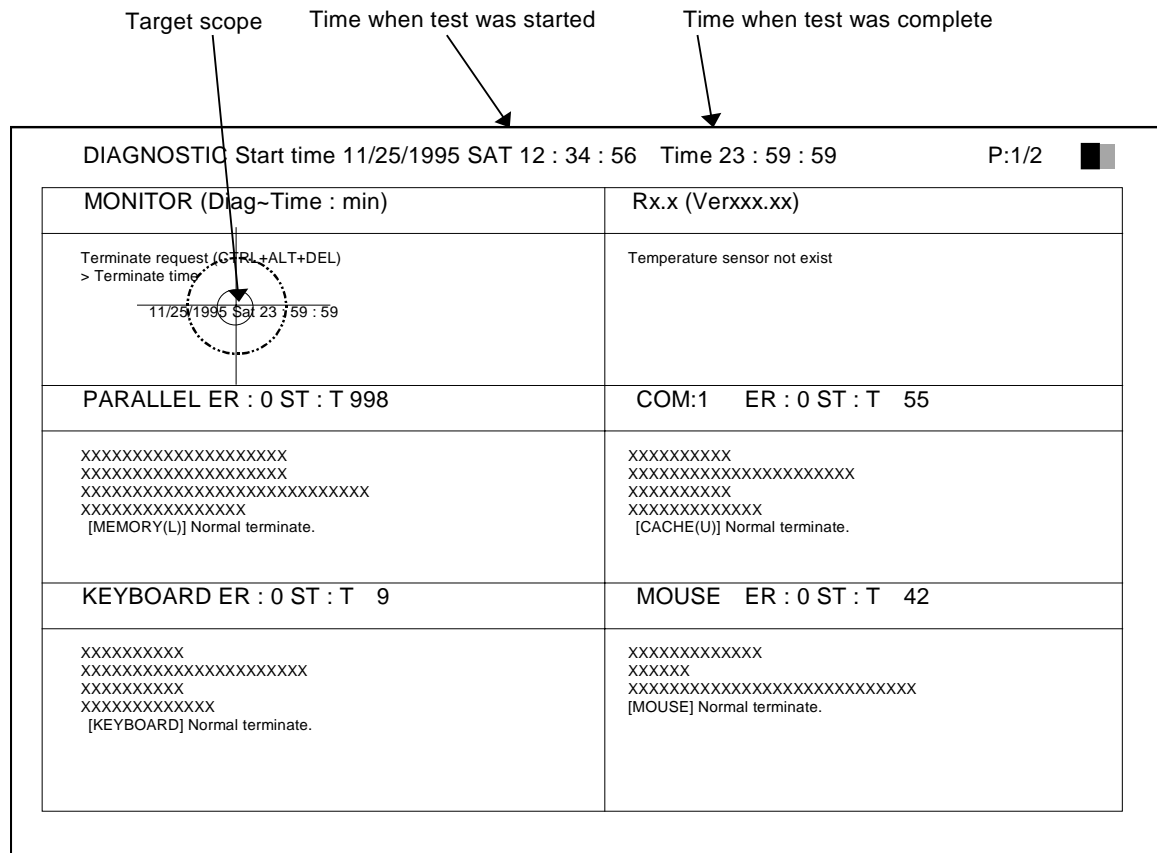


Figure 2.1 Image of screen after test termination

- When there are test items being executed left, the system cannot be operated until four corners in the monitor process window is inverted from black-on white to white-on-black.
- In each process window, a message “ [(test process name)] Normal completion” is shown for the normally terminated test item and “[(test process name)] abnormal completion” is shown for the abnormally terminated test item.
- When all test items terminates, a target scope is shown in the monitor process window.
- When a test item exists in the page other than that currently displayed on CRT, using the ‘Ctrl+A’ key and ‘Ctrl+Z’ key, the screen of currently displayed page can be switched to that of the display of more than one page.
- Figure 2.15 shows the screen image for CGA Console and Figure 2.16 shows that for GA Console.

MONITOR (Diag~Time: 8min)

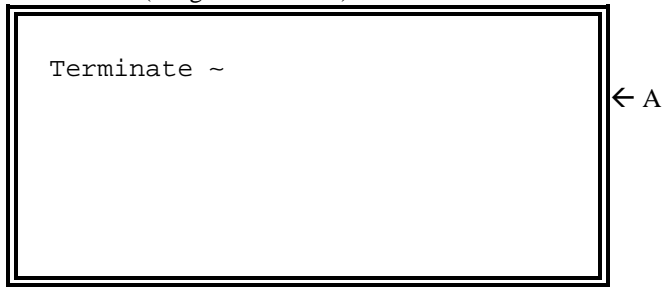


Figure 2.15 Termination screen image for CGA Console

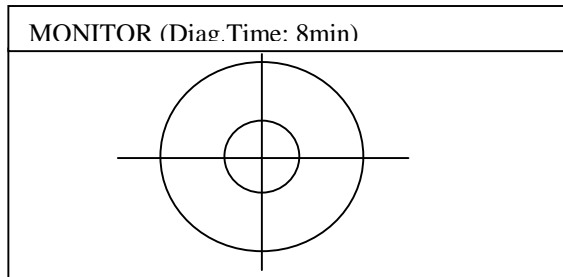


Figure 2.16 Termination screen image for GA Console

When all test items is executed, the color of the frame part of A changes for CGA instead of four corners is inverted from black-on white to white-on-black. (Blue → cyan)
For the GA Console, a target scope is shown.

2.5.2 Key operation and function after all test termination

2.5.2.1 Log message display function

The scroll-up message of each test item can be viewed.

- Use the up-and-down and left-and-right arrow keys to move the target scope to the window you want to display and select that window by pressing the 'Enter' key.
- The background of the window is shown in blue when the key is specified and the message can be scrolled by pressing the up, down, page up, page down, home, end arrow keys.
- Pressing any key other than the up and down arrow keys and the Home key releases the Scroll State of the message.
- Scroll display of the message is available for each window.
- When the amount of message displayed in a window does not exceed one screen, the message cannot be scrolled.

2.5.2.2 Log message output function

The message of each test item can be output to the superdisk, printer, or serial port.

Output of message to Printer is not available in the current version.

- Moving the target scope to the window you want to output and pressing the 'P' key causes the "Log output destination specification menu" to be displayed at the left of the screen as shown in Figure 2.1.

(DEV) Output device	
(SD) SuperDisk	← Outputs the log to SuperDisk(LS-120) medium.
(PRN) Printer	← Prints the log to printer.
(CM1) Com1	
(CM2) Com2	
(CANCEL)	← Cancels the menu.

Figure 2.1 Log output destination specification menu

- When "Com1" or "Com2" is specified as the output device, the "Log output destination specification menu" as shown in Figure 2.2 is displayed.

(ITM) Output Item	
(END) Select end	← Terminate the output item selection.
*(P/F) Pass/Fail	← Outputs pass or fail information.
*(SYS) System Info	← Outputs the system information.
*(DEV) Device List	← Outputs the device information.
(WIN) This Window	← Outputs the information of specified window.
*(ALL) All Window	← Outputs the information of all windows.

Figure 2.2 Log output target specification menu

- When specifying "SuperDisk" as the output device, the log output destination file name input menu as shown in Figure 2.3 is displayed.

(INP) Input Log File Name
<input type="text" value="TD.LOG"/>
ESC : Cancel

Figure 2.3 Output log file name designated window

- An optional output log file name is specified. (Default file name is "TD.LOG")
- An output log is started after the file is named.
- When outputting to the Super Disk media, the confirmation message of the following Super Disk media check is displayed as shown in Figure 2.4, ensure an FD media formatted with 1.44 MB is inserted into the drive. Pressing the 'Enter' key outputs the log.

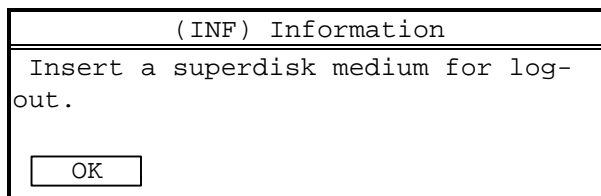


Figure 2.4 Message for Super Disk media check

[Notes when the log is output to the Super Disk media]

- (1) Output to Super Disk is not available on the Rx9610 system that has no LS-120 device installed.
- (2) Prepare the formatted media. (A file shall not be created in the media.)
- (3) After selecting "SuperDisk" in the menu shown in Figure 2.1, do not remove the media from the device until the log output processing is complete and the target scope is displayed.

2.5.2.3 System termination

After each test is terminated, terminate and reinitiate the system.
[In the current version, to terminate, power off the rx9610 system.](#)

3 Message

3.1 Message type

There are three message types:

- Standard - The standard message indicates the execution status of the test. The message color is black.
- Warning - The warning message indicates an error occurred that does not require the test discontinuation during the test execution. The message color is magenta.
- Error - The error message indicates that a critical error occurred during the test execution and that the test was discontinued. The message color is red.

4 T&D EXECUTION PART

4.1 BASIC DEVICE

4.1.1 ACTIVE (*1)

*1. ACTIVE (rx9610 Chip-set Test for Integrated Verification) is a random sequence test to validate the features of the rx9610 chip-set..This test is not available in "END-USER" mode and "MAINTENANCE TEST" mode.

4.1.1.1 Test overview

By performing write/read/compare with a random instruction sequence checks that the function of the rx9610 chip-set operates normally.

4.1.1.2 Test target

Test target is rx9610 chip-set.

4.1.1.3 Preparation before test

No preparation is required

4.1.1.4 Setting test parameter

No setting of test parameters is required because ACTIVE is not a maintenance tool but a verification tool for the rx9610 chip-set.

If an operator runs ACTIVE, it must be run using the default test parameter.

4.1.2 MEMORY (UPPER/LOWER) Test

4.1.2.1 Test overview

- Conflict Test

Confirms that memory it can be read normally even if data is written to the same address many times.

- Address Test

By performing write/read/compare for the memory, this test checks that the memory function operates normally.

Data is reversed in every bit

- Pattern Test

Confirms that a bit does not influence other bits by writing a pattern into memory, reading it, and comparing it.

4.1.2.2 Test target

The test target is the memory in the basic processing unit.

4.1.2.3 Preparation before test

No preparation is required.

4.1.2.4 Setting test parameter

Select test item menu

Selecting “MEMORY (UPPER/LOWER) test” causes the Select Test Item menu shown in Figure 4-1 to be displayed.

(TST) Select Function
(CNF) Conflict Test
*(ADR) Address Test
(PAT) Pattern Test
(SIM) SIMM Step Mode
(END) Select End

Figure 4-1 Select Test Item menu

- When the test item is selected, “*” is indicated at the head of the item name.
- When the test item which has been selected is reselected, “*” disappears and the specification for the test is released.
- When “SIMM Step Mode” is selected with each test, the selected test does only minimum access in every SIMM unit. But, all test applicable memory is examined after running for a long time, because the address of the applicable test memory is moved when repeating an test.
- All applicable test memories are examined in turn if each test is selected without selecting “SIMM Step Mode”.
- When “Select End” is selected, the parameter input is terminated.

Select Address Test Data menu

Selecting “Address Test” from the Select Test Item menu causes the Select Address Test Data menu shown in Figure 4-1 to be displayed.

(SAD) Select AddressTest Data
*(ADR) Address
(XOR) XOR Address
(END) Select End

Figure 4-1 Select Address Test Data menu

- When “Address” is selected, the applicable test address becomes data to use in Address Test.
- When “XOR Address” is selected, the applicable test address reversed in every bit, becomes the data to use in Address Test.
- It is possible that “Address” and “XOR Address” are selected at the same time.
- When Data to use by the Address Test is selected, “*” is indicated at the head of the item name.
- When the test item which has been already selected is reselected, “*” disappears and the specification for the test is released.
- When “Select End” is selected, the selection of Data to use by the Address Test terminates and the Select Test Item menu in Figure 4-1 is displayed again.

Select Pattern Test Function menu

Selecting “Pattern Test” from the Select Test Item menu shown in Figure 4-1 causes the Select Pattern Test Function menu shown in Figure 4-3 to be displayed.

(PAT) Select Pattern Test Function	
(PH0)	Phase 0
(PH1)	Phase 1
(PH2)	Phase 2
(PH3)	Phase 3
(END)	Select End

Figure 4-1 Select Pattern Test Function menu

- When Pattern Test Item is selected, “*” is indicated at the head of the item name.
- When the test item which has been already selected is reselected, “*” disappears and the specification for the test is released.
- When “Select End” is selected, the selection of Pattern Test Item terminates and the Select Test Item menu in Figure 4-1 is displayed again.

4.1.3 CACHE (EVEN/ODD) Test

4.1.3.1 Test overview

Checks that the CPU cache functions normally by performing write/read/compare instructions for the CPU cache

4.1.3.2 Test target

Test target is CPU cache in the basic processing unit.

4.1.3.3 Preparation before test

No preparation is required

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4.1.3.4 Setting test parameter

None required

4.1.4 NvRAM Test

4.1.4.1 Test overview

Checks that the data in NvRAM can be correctly read.

4.1.4.2 Test target

Test target is NvRAM in the basic processing unit.

4.1.4.3 Preparation before test

No preparation is required

4.1.4.4 Setting test parameter

None required

4.1.5 WDT Test

4.1.5.1 Test overview

The following test is executed for the WDT (Watch Dog Timer) in rx9610 chip-set.

Reset & Start/Stop TEST (WDT Mode:LOCAL)

Reset & Start/Stop TEST (WDT Mode:GLOBAL)

4.1.5.2 Test target

Test target is WDT in the rx9610 chip-set.

4.1.5.3 Preparation before test

No preparation is required

4.1.5.4 Setting the Test Parameters

Selecting “WDT” from the “PROMPTED EXECUTION MENU” causes the “Test Select menu” shown in Figure 4-1 to be displayed.

(WDT) TEST SELECT MENU	
*(RSL) Reset&Start/Stop TEST (WDT Mode:LOCAL)	←LOCAL MODE test
*(RSG) Reset&Start/Stop TEST (WDT Mode:GLOBAL)	←GLOBAL MODE test
(END) Select End	

Figure 4-1 Test Select menu

- Default selection is both "LOCAL MODE test" and "GLOBAL MODE test".

4.1.6 XTPR Test

4.1.6.1 Test overview

Checks the XTPR (External Task Priority Register) in the rx9610 chip-set.

XTPR Update TEST

XTPR Redirection TEST

4.1.6.2 Test target

Test target is the XTPR in the rx9610 chip-set.

4.1.6.3 Preparation before test

No preparation is required

4.1.6.4 Setting the Test Parameters

Selecting “XTPR” from the “PROMPTED EXECUTION MENU” causes the “Test Select menu” shown in Figure 4-1 to be displayed.

(XTP) XTPR Test Select Menu
*(UPD) XTPR Update Test
*(RDI) XTPR Redirection Test
(END) Select End

Figure 4-1 Test Select menu

- Default selection is both "XTPR Update Test" and " XTPR Redirection Test ".

4.1.7 IOTLB Test

4.1.7.1 Test overview

Checks the IOTLB (Input/Output Translation look-aside buffer) in the rx9610 chip-set.

IOTLB Control Register Access TEST

IOTLB Direct Access TEST

4.1.7.2 Test target

Test target is the IOTLB in the rx9610 chip-set.

4.1.7.3 Preparation before test

No preparation is required

4.1.7.4 Setting the Test Parameters

Selecting "IOTLB" from the "PROMPTED EXECUTION MENU" causes the "Test Select menu" shown in Figure 4-1 to be displayed.

(IOT) IOTLB Test Select Menu
*(CRA) IOTLB Control Register Access Test
*(DAT) IOTLB Direct Access Test
(END) Select End

Figure 4-1 Test Select menu

- Default selection is both " IOTLB Control Register Access Test " and " IOTLB Direct Access Test ".

4.1.8 Shared Memory Test (CLUSTER)

4.1.8.1 Test overview

Checks the Shared Memory of a CLUSTER system

Own Node Memory Read/Write TEST

Other Node Memory Read TEST

Other Node Memory Read/Write TEST

Node to Node Communication Read TEST

Node to Node Communication Read/Write TEST

Node to Node Communication Read/Write Semaphore TEST

Table 4.1 Attribute of Shared Memory of each Test

Test name	Attribute of Shared Memory	
	Read/Write	Read Only
.Own Node Memory Read/Write TEST	.	.
.Other Node Memory Read TEST	.	.
.Other Node Memory Read/Write TEST	.	-
.Node to Node Communication Read TEST	.	.
.Node to Node Communication Read/Write TEST	.	-
.Node to Node Communication Read/Write Semaphore TEST	.	-

4.1.8.2 Test target

Test target is Shared Memory in an rx9610 CLUSTER system.

4.1.8.3 Preparation before test

Start the system in CLUSTER mode using shared memory.

4.1.8.4 Setting the Test Parameters

Test parameter main menu

Selecting “SHARED MEMORY” from the “PROMPTED EXECUTION MENU” causes the “Shared Memory Test Select Menu” shown in Figure 4-1 to be displayed.

(SHM) Shared Memory Test Select Menu	
(NOD) Node Number	← Node Number
(IDX) Test Area Index	← Test target Area Index
(SIZ) Test Area Size	← Test target Select Size
(ITM) Test Item	← Test Item
(END) Select End	

Figure 4-1 Shared Memory Test Select Menu

Select Node Number Menu

Selecting “Node Number” from the “Shared Memory Test Select Menu” causes the “Select Node Number Menu” shown in Figure 4-1 to be displayed.

(NOD) Select Node Number	
(N00) Node #0 : no shared memory	← Select Node#0
(N01) Node #1 : read only	← Select Node#1
(N02) Node #2 : read / write	← Select Node#2
(N03) Node #3 : read / write	← Select Node#3
(END) Select End	

Figure 4-1 Select Node Number Menu

- All node in system are displayed.
- A node cannot be selected that has “no shared memory”.
- The same node number for all nodes must be selected.

Input Test Area Index Menu

Selecting “Test Area Index” from the “Shared Memory Test Select Menu” causes the “Input Test Area Index Menu” to be displayed as shown in Figure 4-1 .

(IDX) Input Test Area Index by Hex : 0-3ffffffc0	
<input type="text"/>	← Enter Index value
ESC : Cancel	

Figure 4-1 Input Test Area Index Menu

- The displacement from the top of the tested shared memory (Default = 0) can be changed.
- The same index value must be inputted for all nodes.

Input Test Area Size Menu

Selecting “Test Area Size” from the “Shared Memory Test Select Menu” causes the “Input Test Area Size Menu” to be displayed as shown in Figure 4-1.

(SIZ) Input Test Area Size by Hex : 80-40000000	
<input type="text"/>	← Enter size value
ESC : Cancel	

Figure 4-1 Input Test Area Size Menu

- Size of the tested shared memory can be changed (Default = Size of shared memory – Test Area Index).
- The same size must be inputted for all nodes.

Select Test Item Menu

Selecting “Test Item” from the “Shared Memory Test Select Menu” causes the “Select Test Item” to be displayed as shown in Figure 4-1.

(ITM) Select Test Item	
*(MRW) My node all read / write	← Own node read/write test
*(YRD) Your node all read	← Other node read test
*(YRW) Your node all read / write	← Other node read/write test
*(NCR) Node communication by read	← Node communication read
*(NCW) Node communication by read / write	← Node communication read/write
*(NCS) Node communication by semaphore read / write	← Node communication semaphore
(END) Select End	

Figure 4-1 Select Test Item Menu

- An operator cannot select read/write test when the attribute of the shared memory is read only as shown in Table 4.1.
- “*” is marked to the selected test item.

Warning Message

The following warning messages may be displayed as a result of an illegal test environment/condition.

(a) Not cluster mode: cannot execute test because system is not in CLUSTER mode

(INF) Information
Not cluster mode.
<input type="button" value="OK"/>

(b) No shared memory: cannot execute test because node has no shared memory

(INF) Information
No shared memory.
<input type="button" value="OK"/>

(c) Prohibition of test execution on other node: cannot guarantee the test result on other node because own node test is selected.

(INF) Information
Caution : You selected own node only. Never test on the other node. Otherwise, test execution can not be guaranteed.
<input type="button" value="OK"/>

(d) Other node parameter error: cannot guarantee the test result because a different parameter is input on other node.

(INF) Information
Caution : On the other node, please input Same Parameter. Otherwise, test execution can not be guaranteed.
<input type="button" value="OK"/>

(e) Test Area Index parameter error: Test Area Index must be 64 bytes boundary.

(INF) Information
(INF) Information Sorry, Test Area Index must be 64byte boudary.
<input type="button" value="OK"/>

(f) Test Area Size parameter error-1: (Test Area Index + Test Area Size) exceeds the size of shared memory.

(INF) Information
(INF) Information Notice : Test Area Size changed too. 0000000040000000 -> 000000003fffffc0
<input type="button" value="OK"/>

(g) Test Area Size parameter error-2: Test Area Size must be 64 bytes boundary.

(INF) Information
(INF) Information Sorry, Test Area Size must be 64byte boudary.
<input type="button" value="OK"/>

4.1.9 KEYBOARD Test

4.1.9.1 Test overview

Checks that the input from a keyboard is accepted.

4.1.9.2 Test target

The keyboard connector and the connected keyboard shall be the test target.

4.1.9.3 Preparation before test

No preparation is required

4.1.9.4 Setting test parameter

Select scan code menu

The “Select scan code menu” is show in Figure 4-1 Select scan code menu is selected when the KEYBOARD test is chosen from the “PROMPTED EXECUTION MENU” after “A-VX KB” is chosen as the “Keyboard Type” in the “SETUP MENU”.

(SCD) Select Scan Code	
(SCD1) 1 [Pass through]	← ScanCode1 (Pass through mode)
(SCD2) 2 [Translate]	← ScanCode2 (Translate mode)

Figure 4-1 Select scan code menu

Select automatically send command menu

Selecting one of the scan codes from “Select scan code menu” causes the “Select automatically send command” menu to be displayed as shown in Figure 4-1.

(ASC) Automatically Send Command?	
(YES)	← Automatically send command.
(NO)	← Automatically not send command.

Figure 4-1 Select automatically send command menu

- Pressing the ‘Esc’ key causes the display to return to “Select scan code menu” as shown Figure 4-1.

4.1.10 MOUSE Test

4.1.10.1 Test overview

Checks that the input from the mouse is accepted.

4.1.10.2 Test target

The mouse connector and the mouse shall be the test target.

4.1.10.3 Preparation before test

Connect the mouse before applying power to the basic processing device.

4.1.10.4 Setting test parameter

None required.

4.1.11 PARALLEL Test

4.1.11.1 Test overview

Normal Loopback Test

Performs loopback transfer to determine that the normal status can be obtained.

4.1.11.2 Test target

Loopback test,

The parallel port shall be the test target.

4.1.11.3 Preparation before test

Loopback test

Ensure the loopback connector is connected to the parallel port on the basic processing unit.

4.1.11.4 Setting test parameter

Select Test Mode menu

Selecting “Parallel Test Initiation” in the “PROMPTED EXECUTION MENU” displays the Select Test Mode menu as shown in Figure 4-1.

(TST) Select Test Mode
(LPB) Loopback Test

Figure 4-1 Select Test Mode menu

Select Loopback mode menu

Selecting “Loopback Test” in the “Select Test Mode” menu displays the Select Loopback Mode menu as shown in Figure 4-1.

(SLM) Select Loopback mode
(NLB) Normal Loopback Test

Figure 4-1 Select Loopback Mode menu

- When “Normal Loopback Test” is selected, pressing the ‘Enter’ key, executes the loopback test.

4.1.12 COM Test

COM test does not support a real device such as modem in the current version.
Internal loopback test is available in the rx9610 without any connectors. Also, external loopback test is available using the loopback connector.

4.1.12.1 Test overview

Checks that the send and receive functions work normally.

External loopback mode

This test compares the send data to the receive data by connecting the loopback connector to the serial port.

Internal loopback mode

This test compares the send data to the receive data by using the inner loop function of the serial port (not using the interruption function).

4.1.12.2 Test target

The serial port shall be the test target.

4.1.12.3 Preparation before test

When using the external loopback mode, be sure to connect the loopback connector to the serial port on the basic processing unit.

4.1.12.4 Setting test parameter

Test target serial port select menu

Selecting “COM test” in the PROMPTED EXECUTION MENU displays the “Test COM Select” menu shown in Figure 4-1.

(SEL) Test COM Select	
(END) Select end	← Serial port has been selected.
(#1) COM1	← Selecting serial port 1.
* (#2) COM2	← Selecting serial port 2.

Figure 4-1 Test target serial port select menu

- Move the cursor with the up and down arrow keys and select with the ‘Enter’ key.
- When the test item is selected, “*” is indicated at the head of the item name.
- When the test item which has been already selected is selected, “*” disappears and the specification for the test is released.
- When “Select end” is selected, the selection of the serial port is complete.

Select test menu

Selecting one of the ports the “Test COM Select” menu displays the “Select Test” menu shown in Figure 4-1.

(TST) Select Test	
(LB) Loopback Test	← Loopback test
(DV) Device Test	← Connection device test -> Not Avalibale in current version

Figure 4-1 Select Test menu

- Select “Loopback Test” by moving the cursor with up and down arrow keys and select with the ‘Enter’ key.
- Pressing the ‘Esc’ key returns to the ”Test COM Select menu as shown in Figure 4-1.

Select loopback test parameter menu

Selecting the “Loopback Test” in the “Select Test” menu displays the “Select Loopback Test Parameter” menu as shown in Figure 4-1.

(PARA) Select Loopback Test Parameter	
(END) Select end	
(LBM) Loopback Test Mode : External	← Selecting loopback test mode
(UART) UART Mode : Non_Extend	← Selecting UART mode
(RATE) Baud Rate : 9600bps	← Selecting baud rate
(FIFO) FIFO Control : FIFO Disabled	← Selecting FIFO control mode

Figure 4-1 Select Loopback Test Parameter menu

- It is not necessary to select the UART mode in the specified serial controller.
- Move the cursor with the up and down arrow keys and select with the ‘Enter’ key.
- Pressing the ‘Esc’ key returns to the “Select Test” menu shown in Figure 4-1.

Select loopback test mode menu

Selecting “Loopback Test Parameter” menu from the “Loopback Test Mode” shown in Figure 4-1 displays the “Select Loopback Test Mode” menu displayed in Figure 4-1.

(LBM) Select Loopback Test Mode
(EXT) External Loopback Mode
(INT) Internal Loopback Mode

Figure 4-1 Select Loopback Test Mode menu

- Move the cursor with the up and down arrow keys and select with the ‘Enter’ key.
- Pressing the ‘Esc’ key returns to the “Select Loopback Test Parameter” menu shown in Figure 4-1.

Select UART mode menu

Selecting “UART Mode” from the “Select Loopback Test Parameter” menu shown in Figure 4-18 displays the “Select UART Mode” menu shown in Figure 4-1.

(UART) Select UART Mode
(NOE) Non_Extend
(EX) Extend

Figure 4-1 Select UART Mode menu

- Move the cursor with the up and down arrow keys and select with the ‘Enter’ key.
- Pressing the ‘Esc’ key returns to the “Select Loopback Test Parameter” menu shown in Figure 4-1.

Select baud rate menu

Selecting “Baud Rate” from the “Loopback Test Parameter” menu shown in Figure 4-1 displays the “Select Baud Rate” menu shown in Figure 4-1.

(RATE) Select Baud Rate
(9600) 9600bps
(115K) 115200bps

Figure 4-1 Select Baud Rate Mode menu

- The values of baud rate vary depending on the serial controller.
- Move the cursor with the up and down arrow keys and specify with the ‘Enter’ key.
- Pressing the ‘Esc’ key returns the “Select Loopback Test Parameter” menu as shown in Figure 4-1.

Select FIFO Mode menu

Selecting “FIFO Control” from the “Select Loopback Test Parameter” menu shown in Figure 4-1 displays the “Select FIFO Mode” menu shown in Figure 4-1.

(FIFO) Select FIFO Mode
(FD) FIFO Disabled
(FE) FIFO Enabled

Figure 4-1 Select FIFO Control Mode menu

- Move the cursor with the up and down arrow keys and select with the ‘Enter’ key.
- Pressing the ‘Esc’ key returns to the “Select Loopback Test Parameter” menu shown in Figure 4-1.

4.1.13 IDE Test

4.1.13.1 Test overview

This section defines the IDE test items. See Table 4.1 for the relationship between test items and corresponding devices.

Table 4.1 Test items of IDE devices

	CD-ROM	SuperDisk	DVD-ROM
Random read test	X	-	X
Sequential read test	X	-	X
Bitmap test	X	-	-
One block read test	X	-	X
Play audio test	X	-	-
Command test	X	X	X
Register test	X	X	X
Butterfly read test	X	-	X
FD write/read test	-	X	-

Legends X: Selectable
-: Not selectable

Random read test

Reads data for the block selected at random to check that the device operates normally.

Sequential read test

Reads and compares data for the block specified by the user to check that the device operates normally.

Bitmap test

Searches bitmap file (*.BMP) and displays its contents to check that the device operates normally.

One block read test

Reads data for each block twice and compares each read data to check that the device operates normally.

Play audio test

Plays the track specified by the user to check that the audio player operates normally.

Command test

This test attempts to issue ATA and ATAPI commands to the device, and checks that the device operates normally.

NOTE: Depending on command issued, data in the device may be lost or the device's parameter may be changed.

Register test

This test attempts to read and write access to legacy IDE registers and bus master IDE registers, and checks that the device operates normally.

Butterfly read test

This test reads the data of max-LBA and min-LBA alternately and checks that the device operates normally. Each block will be read twice and their data will be compared to ensure a data match.

FD write/read test

Writes, reads, and compares data for the block in FD or SuperDisk medium to ensure that the device operates normally. If the volume label of the medium is not "TDTDTD", only the read data test is executed.

NOTE: If the volume label of the medium is "TDTDTD", all data in the device is lost.

4.1.13.2 Test target

Only the devices that are defined in the product definition shall be the targets.

4.1.13.3 Preparation before test

CD-ROM

Set the data-stored CD-ROM in the device except when performing the play audio test. Set the voice-stored CD-ROM in the device when the play audio test is being performed. Set the bitmap-stored CD-ROM in the device when the bitmap test is being performed.

SuperDisk

Insert a medium in the device. The medium must be formatted with 120MB, 1.44MB, 1.25MB or 720KB. Set the volume label to "TDTDTD". If a volume label other than "TDTDTD" is used, the write data test will not be performed.

DVD-ROM

Set the data-stored DVD-ROM in the device before select the device from the menu.

4.1.13.4 Setting test parameter

The test parameter is set with some menus. The menus are available to specify a test channel, test target device, and test item in combination.

Input procedure in each test item

Table 4.1 lists the menu displayed when each test item is selected. Figure 4-1 shows the display-related diagram of each menu.

Table 4.1 List of each test item and menu displayed for the selection

Test item	Menu								
	Random read test	Sequential read test	Bitmap test	One block read test	Play audio test	Command test	Register test	Butterfly read test	FD write/read test
(a) Select test channel menu	X	X	X	X	X	X	X	X	X
(b) Select test device menu	X	X	X	X	X	X	X	X	X
(c) Select test item menu #1	X	X	X	X	X	X	X	X	X
(d) Select test item menu #2	X	X	X	X	X	X	X	X	X
(e) Password check menu	-	-	-	-	-	X	-	-	-
(f) Select test block menu	X	X	-	X	-	-	-	X	-
(g) Select data transfer mode menu	X	X	-	-	-	-	-	-	-
(h) Select test counts menu	X	X	X	X	X	-	X	X	X
(l) Select data transfer length menu	X	X	-	-	-	-	-	X	-
(j) Select play track menu	-	-	-	-	X	-	-	-	-
(k) Command test	-	-	-	-	-	X	-	-	-
(l) Warning message	*	*	*	*	*	*	*	*	*

Legends X: Displayed
 -: Not displayed.
 *: May be displayed depending on the device condition.

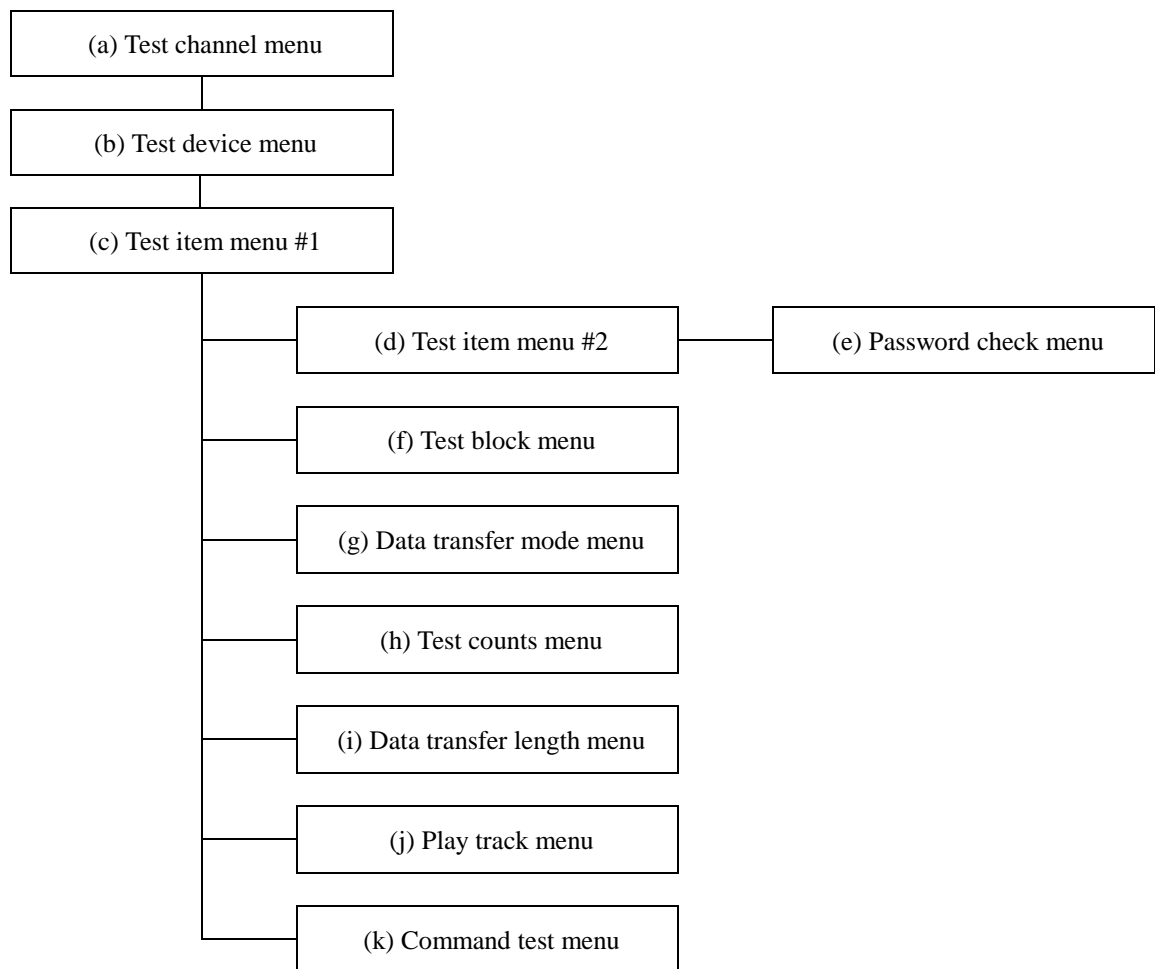


Figure 4-1 Display-related diagram of each menu

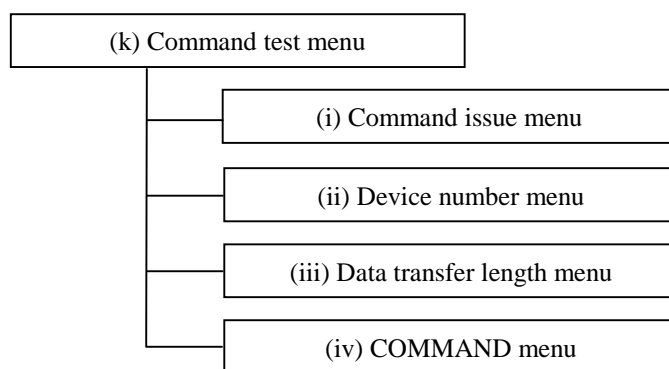


Figure 4-2 Display-related diagram of each menu

Description of each menu of Select test item

(a) Select test channel menu

When selecting IDE test, the figure below is displayed. In this menu, select the test channel.

(SEL) PCI SLOT SELECT	
(END) Select end	← Selection complete
(#0) IDE 0	← Select channel 0
(#1) IDE 1	← Select channel 1

- The menu to be displayed varies depending on the setting condition of the IDE channel.
- The above Figure is an example of a display. In this example, there are 2 IDE channels in this system.

(b) Select test device menu

Select the test device on the menu shown below.

(DEV) Select test device	
(MASTER) FDD : NOT TEST : LS-120 F250 01 UHD Floppy	← Select device 0
(SLAVE) CD-ROM : PLAY AUDIO : CD-ROM CDU-77E 1.3b	← Select device 1
(END) Select end	← Selection complete

- The menu displayed varies depending on the connection condition of the device.
- The above Figure is an example of a display. A device type, test item, and device name are displayed for each device. In this example, SuperDisk is connected to MASTER and CD-ROM is connected to SLAVE. Play audio test is selected for CD-ROM device.

(c) Select test item menu #1

Select each test item on this menu.

(TST) Select test item	
(END) Select end	← Selection complete
(ITM) Test Item : RANDOM READ	← Select test item #2
(BLK) Test Block : ALL BLOCK	← Select test block
(LEN) Block Length : RANDOM LENGTH	← Select data transfer length
(TRN) Data Transfer Mode : DMA mode	← Select data transfer mode
(REP) Test Repeat : ENDLESS	← Select test counts
(PLY) Play Track No. : -----	← Select play track
(CANCEL)	← Cancel

- The test item to be displayed varies depending on the device. For example, the “Play Track No.” selection item is displayed only for the CD-ROM device.
- On each selection item, the right side of colon means a selected function. In the example above, DMA mode is selected for “Data Transfer Mode”.

(d) Select test item menu #2

Select each test item on this menu.

(ITM) Select test item	[CD-ROM]
(NT) NOT TEST	← Not test
(RR) RANDOM READ	← Random read test
(SR) SEQUENTIAL READ	← Sequential read test
(BM) BITMAP	← Bitmap test
(1B) 1 BLOCK SEQ READ	← One block read test
(PA) PLAY AUDIO	← Play audio test
(CM) COMMAND MENU	← Command test
(RT) REGISTER TEST	← Register test
(BR) BUTTERFLY READ	← Butterfly read test
(CANCEL)	← Cancel

(ITM) Select test item	[SuperDisk]
(NT) NOT TEST	← Not test
(FD) FD WRITE/READ	← FD write/read test
(CM) COMMAND MENU	← Command test
(RT) REGISTER TEST	← Register test
(CANCEL)	← Cancel

(ITM) Select test item	[DVD-ROM]
(NT) NOT TEST	← Not test
(RD) RANDOM READ	← Random read test
(SR) SEQUENTIAL READ	← Sequential read test
(CM) COMMAND MENU	← Command test
(RT) REGISTER TEST	← Register test
(CANCEL)	← Cancel

- The test item to be displayed varies depending on the device.

(e) Password check menu

Check password required for test execution on this menu.

(PSW) Enter password	
<input type="text"/>	← Enter password
ESC : Cancel	

- Do not disclose the password to the general operator.

(f) Select test block menu

Select test block on this menu.

(BLK) Select test block	
(ALL) ALL block	← Specify all block
(IBN) Input block No.	← Specify test block range
(CANCEL)	← Cancel

- If the device does not support the logical block, select the test cylinder.
- When "Input block No." is selected, the submenus shown below are displayed. Specify the block range from the sub menu.

(SBN) Input start block [0 - xxxx]	xxxx : Max. block
<input type="text" value="0"/>	← Enter test start block
ESC : Cancel	

(EBN) Input end block [yyyy - xxxx]	xxxx : Max. block yyyy : Test start block
<input type="text" value="0"/>	← Enter test end block
ESC : Cancel	

- If out-of-range values or illegal data such as characters are input, correct data must be input again.
- The maximum block number is different for each device and medium.

(g) Select data transfer mode menu

Select the data transfer method on these menus.

(TRN) Select data transfer mode	[DMA supported device]
(PIO) PIO transfer	← PIO transfer mode
(DMA) DMA transfer	← DMA transfer mode
(CANCEL)	← Cancel

(TRN) Select data transfer mode	[ULTRA DMA supported device]
(PIO) PIO transfer	← PIO transfer mode
(ULTRA) ULTRA DMA transfer	← ULTRA DMA transfer mode
(CANCEL)	← Cancel

- This menu is not displayed when the device does not support DMA transfer or ULTRA DMA transfer.

(h) Select test counts menu

Select the number of times of the test execution on this menu.

(REP) Input test repeat count [1 - 99999, 0 : endless]	
<input type="text" value="0"/>	← Enter test counts
ESC : Cancel	

- When 0 is entered, limits to the test count are not imposed.
- If out-of-range values or illegal data such as characters are input, correct data must be input again.

(i) Select data transfer length menu

Set the data transfer length in the testing to a fixed length or random length on this menu.

(LEN) Input block length [1 - 256, 0 : random]	
<input type="text" value="0"/>	← Enter data transfer length
ESC : Cancel	

- When 0 is entered, the data transfer length is set to random.
- If out-of-range values or illegal data such as characters are input, the correct data must be input again.
- Input range is 0-256 for CD-ROM.

(j) Select play track menu

Select the play track on this menu.

(PLY) Select play track	
(ALL) ALL track	← Select all tracks.
(ITN) Input play track No.	← Specify the test range.
(CANCEL)	← Cancel

- When “Input play track No.” is selected, the following submenus appear. Specify the play track range from the submenu.

(STN) Input play start track [xx - yy]	xx : Min. track yy : Max. track
<input type="text" value="xx"/>	← Enter play start track
ESC : Cancel	

(ETN) Input play end track [ss - yy]	ss : Play start track yy : Max. track
<input type="text" value="yy"/>	← Enter play end track
ESC : Cancel	

- If out-of-range values or illegal data such as characters are input, the correct data must be input again.
- The minimum track number and maximum track number are different for each medium.

(k) Command test

Figure 4-1 shows the “SCSI Command Test” menu. In this menu, select command data and issue command.

(@CARD1) SCSI COMMAND TEST	
(ISSUE)	: Command Issue
(TYPE)	: ATAPI
(REG)	: ER:00 IR:02 BL:00 BH:02 DS:a0 ST:50 AL:50
(COMMAND)	: 12 00 00 00 24 00 00 00 00 00 00 00
(LENGTH)	: 24 [Data In]
(DATA)	: x0 x1 x2 x3 x4 x5 x6 x7 x8 x9 xA xB xC xD xE xF
(#0000)	: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
(#0010)	: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
(#0020)	: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
(#0030)	: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
(#0040)	: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
(#0050)	: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
(#0060)	: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
(#0070)	: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
(TEST END)	

Figure 4-1 Command test - Main menu

- Command test attempts to issue SCSI commands to the device selected by the user.
- The meaning of each selected item is as follows.

“ISSUE”:	Issue command	“TYPE”:	Select	ATA/ATAPI
“REG”:	Register value	“COMMAND”:	Edit	command
“LENGTH”:	Select data transfer length	“TEST END”:	Command test end	

(i) Command test – Command issue menu

Figure 4-1 show the command issue menu of the Command test. This menu shows result of the command executed.

(CMD_END) Command END	[Case: Command OK]
Command complete	
[COMMAND]	
12 00 00 00 24 00 00 00 00 00 00 00	
[REGISTER]	
ER:00 IR:05 BL:00 BH:02 DS:a0 ST:00 AL:50	

Figure 4-1 Command test - Command issue menu

(ii) Command test – Select device No menu

(ID) Select device [0:MASTER / 1:SLAVE]	
<input type="text" value="0"/>	← Enter device No
ESC : Cancel	

Figure 4-1 Command test – Device No menu

(iii) Command test – Select data transfer length menu

Figure 4-1 is a data transfer length menu of Command test. Specify a data transfer length.

(LENGTH) Input data length [0-0x20000]	
<input type="text" value="0"/>	← Enter data transfer length (byte)
Up/Down-Cursor: Change Values	
ESC : Cancel	

(IN_OUT) Select data direction	
(IN) Data In [Device -> Host]	← In Data
(OUT) Data Out [Device <- Host]	← Out Data
(NO) No Data	← No Data
(CANCEL)	← Cancel

Figure 4-1 Command test - Data transfer length menu

- Input range is 0 - 131072.
- Selecting the command without data transfer, you have no input 0.

(iv) Command test – Select COMMAND menu

(TYPE) Select command type	
(ATAPI) Packet command	← Issue Packet command
(ATA) ATA command	← Issue ATA command
(CANCEL)	← Cancel

(CMD) Input command data	
12 00 00 00 24 00 00 00 00 00 00 00 00	← Enter Packet command
ESC : Cancel	

(CMD) Input command data [CM,DH,CH,CL,SN,SC,FE]	
A1 A0 00 00 00 00 00	← Enter ATA command
ESC : Cancel	

Figure 4-1 Command test - Command menu

- Command-link is not available to issue.
- Data transfer range is 0 – 131072. Do not specify the command that has data transfer over this range.
- Depending on the issued command, data in the device may be lost.
- If check condition occurs during command execution, the REQUEST SENSE command will be issued.

(I) Warning message

When the test cannot be conducted because the controller or device condition is incorrect, the following warning messages are displayed.

(ERR) CAUTION : Port address is not defined, so test can't execute.
(OK)

- The test cannot be executed because the I/O port address is not defined.

(ERR) CAUTION : Controller is disabled, so test can't execute.
(OK)

- The test cannot be executed because the controller is in a disabled status.

(ERR) CAUTION : Test device not detected, so test can't execute.
(OK)

- The test cannot be executed because the target test device is not connected.

(ERR) CAUTION : Device not ready or media not present.
(OK)

- A device is not ready for the operation.
- Media for the test is not set.

(ERR) CAUTION : Device not ready or there is no audio track.
(OK)

- A device is not ready for the operation.
- Audio track cannot be found.

4.1.14 USB Test

4.1.14.1 Test overview

The USB test checks if the USB Host Controller on the basic processing unit operates normally by using USB Tester (CATC HPT (USB Host Production Tester)).

USB Tester Test

This test checks if USB Host Controller on the basic processing unit operates normally by using the USB Tester. This test can be selected in either of two test modes, the "Normal test" which checks each port alternately, and the "Loopback Running" which checks the port connected with CH1 on the USB tester.

The "Normal test" checks following items at full speed (all items) and low speed (except "Bulk Read", "status of Power supply", and "Bulk Loopback").

The "Loopback Running" checks following items at full speed without "disconnect/connect".

- Bulk Read
- Status of power supply
- Bulk Loopback
- Disconnect / connect

4.1.14.2 Test target

The targets of this test are the Core box USB ports.

4.1.14.3 Preparation before test

USB Tester Test

- When "Normal test" is selected, connect USB port1 of the basic processing unit and CH1 of the USB Tester with a USB cable, and connect USB port2 of the basic processing unit and CH2 of the USB Tester with a USB cable.
- When "Loopback Running" Test is selected, connect USB port1 of the basic processing unit and CH1 of the USB Tester with a USB cable, and connect USB port2 of the basic processing unit and CH1 of another USB Tester with a USB cable.
- When One USB port exists on the basic processing unit, connect USB port1 of the basic processing unit and CH1 of the USB Tester with a USB cable.
- Supply power to the USB Tester.

NOTE: Do not connect any device other than the USB Tester to the USB port.

4.1.14.4 Setting test parameter

Select Device menu

When selecting the USB test in the PROMPTED EXECUTION MENU, the Select device menu shown in Figure 4-1 is displayed.

(SUD) Select USB Device	
(UTS) USB Tester	← test with USB Tester.

Figure 4-1 select device menu

Select Test menu

When selecting the “USB Tester” in the Figure 4-1, the Select test menu shown in Figure 4-1 is displayed.

(SST) Select Test type	
(NML) Normal Test	← alternation port test.
(LPB) Loopback Running	← Bulk Loopback Running test.

Figure 4-1 Select test menu

Test target USB port select menu

When selecting one of the test in Figure 4-1, the Test target USB port select menu shown in Figure 4-1 is displayed.

(SEL) Select USB Port	
(END) Select end	← USB port has been selected.
*(#1)Port1	← Selecting USB port 1.
*(#2)Port2	← Selecting USB port 2.

Figure 4-1 Test target USB port select menu

- When the test item is selected, “*” is indicated at the head of the item name.
- When the test item which has been already selected is reselected, “*” disappears and the specification for the test is released.
- When “Select end” is selected, the selection of the USB port is complete.

4.2 PCI BOARD

4.2.1 PCI-ETHER (DEC) Test

4.2.1.1 Test overview

Internal loopback test

Using the loopback feature of the PCI-ETHER (DEC) board, this test checks that the loopback transmission of a packet is done normally.

4.2.1.2 Test target

The PCI-ETHER (DEC) boards mounted in the Basic Processing Unit and PCI slots are to be tested. Table 4-1 lists the PCI-ETHER (DEC) boards to be tested.

Table 4-1 Test target boards

N-CODE	Device name	Remarks
N8504-75	100BASE-TX adapter	

4.2.1.3 Preparation before test

Internal loopback test

Install the test target boards shown in Table 4-1.

Note: **Disconnect the cables from the boards before executing an internal loopback test.**

4.2.1.4 Setting test parameter

Select Test Attribute menu

Selecting a slot from the “Select PCI Test Slot menu” displays the “Select Test Attribute” menu in Figure 4.1.

(TST) Test Attribute
(INT) Internal loopback
(SPC) Specify

Figure 4.1 Select Test Attribute menu

- Selecting “Internal loopback” determines the test for the selected slot and returns to the “Select PCI Test Slot” menu”.
- Pressing the ‘Esc’ key returns to “Select PCI Test Slot menu”.

Enter data length menu

When “Specify” is selected from “Select Test Attribute menu” in Figure 4.1, “Enter Data Length menu” appears as shown in Figure 4.1.

(DTL) Enter Data Length[46-1500] 0:default
<input type="text" value="0"/>
ESC : Cancel

Figure 4.1 Enter Data Length menu

- Enter the data length in decimal number. The available data length ranges from 46 to 1500. To specify the default, enter 0. When an invalid value is entered, the value will be ignored and must be entered again.
- After the data length entry, the system returns to the “Select Test Attribute menu” in Figure 4.1. The input data length here will be valid in “Internal Loopback”.
- Pressing the ‘Esc’ key returns to the “Select Test Attribute menu” in Figure 4.1.

4.2.2 PCI-ETHER (Intel) Test

4.2.2.1 Test overview

Internal loopback test

Using the loopback feature of the PCI-ETHER (Intel) board, this test checks that the loopback transmission of a packet is done normally.

Echo test

This test checks if point-to-point transmission is done normally between a machine and the remote machine connected under 100 Mbps or 10 Mbps LAN environment. The master sends a packet to the slave, and then the slave loops back it to the master.

The user is responsible for specifying the master and slave.

Easy echo test

This test checks that point-to-point transmission is done normally between boards in one machine connected under 100 Mbps or 10 Mbps LAN environment. The master sends a packet to the slave, and then the slave loops back it to the master.

The master and slave are automatically determined when easy echo is selected.

An easy echo test can be executed with only one pair of boards (a set of two boards) in the same machine.

4.2.2.2 Test target

The PCI-ETHER (Intel) boards installed in the Basic Processing Unit and PCI slots are to be tested. Table 4-1 lists the PCI-ETHER (Intel) boards to be tested.

Table 4-1 Test target boards

N-CODE	Device name	Remarks
N8504-75	100BASE-TX adapter	
N8504-40/40A	100BASE-TX adapter	
N8504-27/27A	100BASE-TX adapter	
N8504-80	100BASE-TX adapter	

4.2.2.3 Preparation before test

Internal loopback test

Install the test target boards shown in Table 4-1.

Note: **Disconnect the cables from the boards before executing an internal loopback test.**

Echo test

Install the test target boards shown in Table 4-1.

Under 100 Mbps or 10 Mbps LAN environment, connect machines containing the test target boards.

Figure 4.1 shows a connection sample.

Note:

- Start T&D on the Slave side first.
- Plural tests cannot be done with one HUB.
- This test cannot be done with HUB, which is in use.
- Initialize MAC address-to-port mapping information before execution when using switching HUB (which supports the MAC address learning).
- In transmit rate auto-change mode, connect between the boards with 100BASE-TX reverse cable.

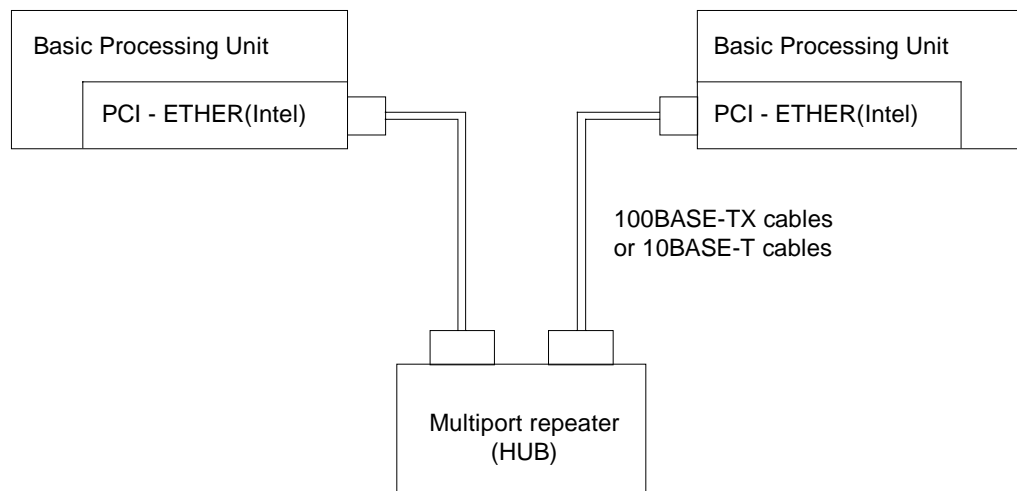


Figure 4.1 Connection sample for an echo test between two PCI-ETHER(Intel) boards

Easy echo test

Install the test target boards shown in Table 4-1.

Under 100 Mbps or 10 Mbps LAN environment, connect the test target boards in one machine.

Figure 4.1 shows a connection sample.

Note:

- Plural tests cannot be done with one HUB.
- This test cannot be done with HUB, which is in use.
- Initialize MAC address-to-port mapping information before execution when using switching HUB (which supports the MAC address learning).
- In transmit rate auto-change mode, connect between the boards with 100BASE-TX reverse cable.

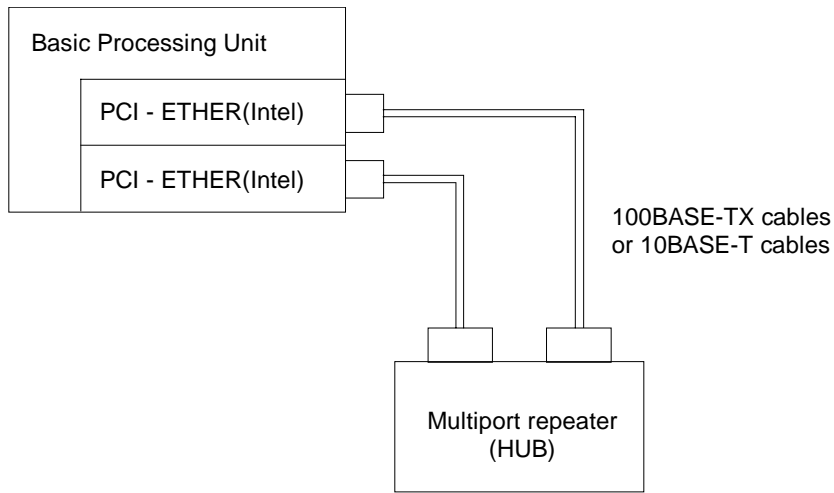


Figure 4.1 Connection sample for an easy echo test between two PCI-ETHER (Intel) boards

4.2.2.4 Setting test parameter

Select Test Attribute menu

Selecting a slot from “Select PCI Test Slot” menu displays the “Select Test Attribute” menu shown in Figure 4.1.

(TST) Test Attribute	
(INT)	Internal loopback
(ECO)	Echo
(ESY)	Easy echo
(SPC)	Specify

Figure 4.1 Select Test Attribute menu

- Selecting “Internal loopback” determines the test for the selected slot and returns to “Select PCI Test Slot menu”.
- Pressing the ‘Esc’ key returns the display to “Select PCI Test Slot menu”.

Select Transmit Rate menu

Selecting “Echo” or “Easy echo” from the “Select Test Attribute menu” in Figure 4.1 displays the “Select Transmit Rate” menu shown in Figure 4.1.

(TRS) Transmit Rate	
(CHG)	Change[100/10M]
(100M)	100 Mbps
(10M)	10 Mbps

Figure 4.1 Select Transmit Rate menu

- Select “Change [100/10M]” in transmit rate auto-change mode; select “100 Mbps” in 100 Mbps mode; select “10 Mbps” in 10 Mbps mode.
- When “Easy echo” on “Select Test Attribute menu” in Figure 4.1 is selected, selecting an item mode determines the test for the selected slot and returns to “Select PCI Test Slot menu”.
- Pressing the ‘Esc’ key returns to “Select Test Attribute” menu in Figure 4.1.

Select Master or Slave menu

Selecting transmit rate from the “Select Transmit Rate” menu in Figure 4.1 displays the “Select Master or Slave” menu shown in Figure 4.1.

(MOS) Master or Slave
(MST) Master
(SLV) Slave

Figure 4.1 Select Master or Slave menu

- Select “Master” in master mode; select “Slave” in slave mode.
- Selecting “Slave” determines the test for the selected slot and returns to “Select PCI Test Slot menu”.
- Select the opposite type for the remote machine.
- Pressing the ‘Esc’ key returns to “Select Transmit Rate menu” in Figure 4.1.

Enter Destination Address menu

Selecting “Master” from the “Select Master or Slave” menu in Figure 4.1, Displays the “Enter Destination Address menu” shown in Figure 4.1.

(ADR) Enter Destination Address[Hex]
00a0c9208900
Up/Down-Cursor: Change Values ESC : Cancel

Figure 4.1 Enter Destination Address menu

- Enter a hexadecimal number as the MAC address of the destination machine.
- After the destination address entry, determines the test for the selected slot and returns to “Select PCI Test Slot menu”.
- Pressing the ‘Esc’ key returns to “Select Master or Slave menu” in Figure 4.1.

Enter data length menu

When “Specify” is selected from “Select Test Attribute menu” in Figure 4.1, the “Enter Data Length” menu as shown in Figure 4.1 is displayed.

(DTL) Enter Data Length[46-1500] 0:default
0
ESC : Cancel

Figure 4.1 Enter Data Length menu

- Enter the data length in decimal number. The available data length ranges from 46 to 1500. To specify the default, enter 0. When the invalid value is entered, the value will be ignored and must be entered again.
- After the data length entry, the system returns to “Select Test Attribute menu” in Figure 4.1. The input data length here will be valid in “Internal loopback”, or “Master” of “Echo”.
- Pressing the ‘Esc’ key returns to “Select Test Attribute menu” in Figure 4.1.

4.2.3 PCI-ETHER (Alteon) Test

4.2.3.1 Test overview

Internal loopback test

Using the loopback feature of the PCI-ETHER (Alteon) board, this test checks that the loopback transmission of a packet is done normally.

4.2.3.2 Test target

The PCI-ETHER (Alteon) boards installed in the Basic Processing Unit and PCI slots are to be tested.

4.2.3.3 Preparation before test

Internal loopback test

Install The PCI-ETHER (Alteon) boards.

Note: **Disconnect the cables from the boards before executing an internal loopback test.**

4.2.3.4 Setting test parameter

Select Test Attribute menu

Selecting a slot from the “Select PCI Test Slot” menu displays the “Select Test Attribute” menu shown in Figure 4.1.

(TST) Test Attribute
(INT) Internal loopback
(SPC) Specify

Figure 4.1 Select Test Attribute menu

- Selecting “Internal loopback” determines the test for the selected slot and returns the display to the “Select PCI Test Slot” menu.
- Pressing the ‘Esc’ key returns the display to the “Select PCI Test Slot” menu.

Select Packet Type menu

When “Specify” is selected from “Select Test Attribute” menu in Figure 4.1, the “Select Packet Type” menu as shown in Figure 4.1 is displayed.

(PKT) Select Packet Type
(STD) Standard
(MIN) Mini
(JMB) Jumbo

Figure 4.1 Select Packet Type menu

Enter data length menu

When selecting either from “Select Packet Type” menu in Figure 4.1 displays the “Enter Data Length” menu as shown in Figure 4.1.

(DTL) Enter Data Length[xxxx-yyyy]
1500
ESC : Cancel

Figure 4.1 Enter Data Length menu

- Enter the data length in decimal number.
- As for data length, the range changes with packet types.
- It inputs in the range shown in the following table.

• Packet type	• Data length
• Standard	• 83.1500
• Mini	• 68.82
• Jumbo	• 1501.9000

- When an invalid value is entered, the value will be ignored and must be entered again.
- After the data length entry, the system returns to the “Select Test Attribute” menu in Figure 4.1. The input data length here will be valid in “Internal loopback”.

- Pressing the 'Esc' key returns to the "Select Test Attribute" menu in Figure 4.1.

4.2.4 PCI-SCSI (ADP) Test

4.2.4.1 Test overview

This section describes the following PCI-SCSI (ADP) test items.
See Table 4-1 for relationship between test items and the corresponding devices.

Table 4-1 Test Items for SCSI Devices

	HDD	CD-ROM
Random read test	X	X
Sequential read test	X	X
Random W/R test	X	-
Sequential W/R test	X	-
One block read test	-	X
Play audio test	-	X

Legends

X: Selectable
-: Not selectable

Random read test

Reads data for the block selected at random to check that the device operates normally.

Sequential read test

Reads and compares data for the block specified by the user to check that the device operates normally.

Random W/R test

Writes, reads, and compares data for the block selected at random to check that the device operates normally.

Note: All the data in the device is lost.

Sequential W/R test

Writes, reads, and compares data for the block specified by the user to check that the device operates normally.

Note: All the data in the device is lost.

One block read test

Reads data for each block twice and compares each read data to check that the device operates normally.

Play audio test

Plays the track specified by the user to check the audio player operates normally.

4.2.4.2 Test target

Only devices defined in the product definition are to be tested.

4.2.4.3 Preparation before test

Hard disk

No preparation is required.

CD-ROM

Install the data-stored CD-ROM in the device when other test than play audio test is to be executed.

Mount the voice-stored CD-ROM in the device when play audio test is to be executed.

4.2.4.4 Setting test parameter

The test parameter is set with some menus. The menus are available to specify a test controller, test target device, and test item in combination.

Input procedure in each test item

Table 4-1 lists the menu displayed when each test item is selected. Figure 4.1 shows display-related diagram of each menu. The following section provides more information of each menu in the table.

Table 4-1 Menus displayed when test items are selected

Menu	Test item					
	Random read test	Sequential read test	Random W/R test	Sequential W/R test	One block read test	Play audio test
(a) Select test controller menu	X	X	X	X	X	X
(b) Select test device menu	X	X	X	X	X	X
(c) Select test LUN menu	X	X	X	X	-	-
(d) Select test item menu #1	X	X	X	X	X	X
(e) Select test item menu #2	X	X	X	X	X	X
(f) Password check menu	-	-	X	X	-	-
(g) Data deletion check menu	-	-	X	X	-	-
(h) Select test block menu	X	X	X	X	X	-
(i) Select data transfer mode menu	X	X	X	X	X	-
(j) Select test counts menu	X	X	X	X	X	X
(k) Select data transfer length menu	X	X	X	X	X	-
(l) Select play track menu	-	-	-	-	-	X
(m) Select write data value menu	-	-	X	X	-	-
(n) Warning message	*	*	*	*	*	*

Legends

X: Displayed
 -: Not displayed.
 *: May be displayed depending on the device condition.

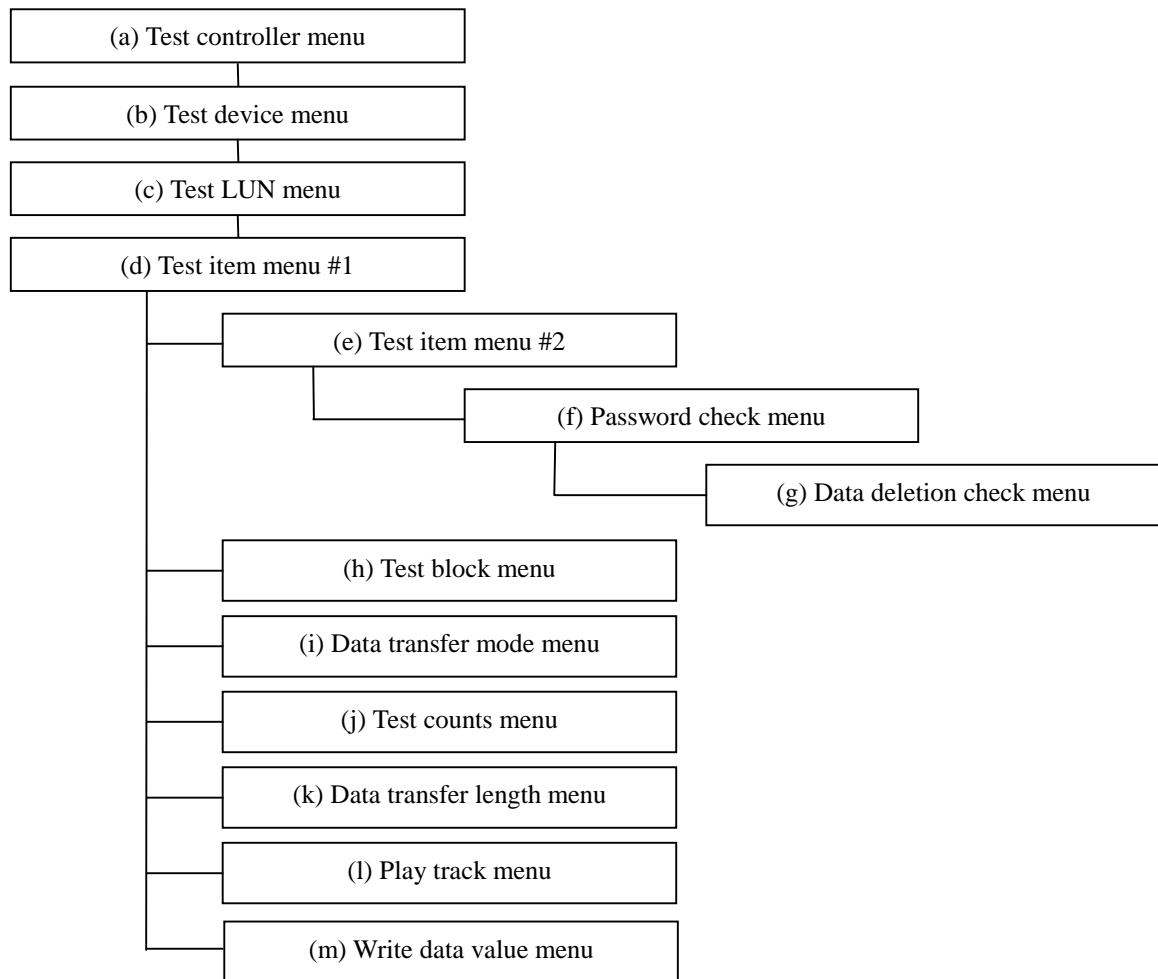


Figure 4.1 Display-related diagram of each menu

Description of each menu of Select test item

(a) Select test controller menu

Selecting “SCSI test” from the “Select Test Controller” menu displays the “PCI Slot Selector” menu shown in Figure 4.1. In this menu, select the test controller.

(SEL) PCI SLOT SELECT	
(END) Select end	← Selection complete Select test controller
(STD1) Standard-SCSI ch1	
(STD2) Standard-SCSI ch2	
(#1) Slot 1	

Figure 4.1 Select test controller menu

- The menu to be displayed varies depending on the controller connection status. The above figure is a display sample. In this example, there are 2 standard SCSI controllers on the motherboard and 1 SCSI controller on the PCI board slot #1.

(b) Select test device menu

On the “ Select test device” menu shown in Figure 4.1, select the test device.

(ID) Select test device	
(#00) ID 0 : HDD : NOT TEST : NEC DKU-374	Select device
(#01) ID 1 : ---- : NOT TEST :	
(#02) ID 2 : CD-ROM : PLAY AUDIO : SONY CD-ROM CDU-76S 1.0a	
(#03) ID 3 : MO : NOT TEST :	
(#04) ID 4 : ---- : NOT TEST :	
(#05) ID 5 : ---- : NOT TEST :	
(#06) ID 6 : ---- : NOT TEST :	
(#07) ID 7 : HOST : SCSI controller: AIC-7870	← Select end
(END) Select end	

Figure 4.1 Select test device menu

- The menu to be displayed varies depending on the device connection status. The above figure is a display sample.
- SCSI ID, device type, test name and device name are displayed for each device. In the example above, CD-ROM device is connected to SCSI ID 2 and Play audio test is selected.

(c) Select test LUN menu

On the “ Select test LUN” menu shown in Figure 4.1, select the test LUN.

(LUN) Select test LUN	
(LUN0) DISK ARRAY : NOT TEST	: #0 #1 #2 #3 #4
(LUN1) DISK ARRAY : RANDOM READ	: #6 #7 #8 #9 #10
(LUN2) NO ASSIGN : NOT TEST	:
(LUN3) NO ASSIGN : NOT TEST	:
(LUN4) HOT SPARE : NOT TEST	: #22
(LUN5) NO ASSIGN : NOT TEST	:
(LUN6) -----	:
(LUN7) -----	:
(END) Select end	

← Selection complete

Figure 4.1 Select test LUN menu

- This menu is displayed only for the device that supports multi LUN. When it is not necessary to select the LUN for the test, this menu is not displayed.
- The LUN type, test item and FRU (or disk numbers) are displayed for each LUN. In the example above, Random read test is selected for the LUN 1 (FRU: #6-#10).

(d) Select test item menu #1

Select each test item on the “ Select test item menu #1” shown in Figure 4.1.

(TST) Select test item	
(END) Select end	
(ITM) Test Item	: SEQUENTIAL READ
(BLK) Test Block	: ALL BLOCK
(LEN) Block Length	: RANDOM LENGTH
(TRN) Data Transfer Mode	: NARROW & SYNC
(REP) Test Repeat	: ENDLESS
(PLY) Play Track NO.	: ALL TRACK
(WRT) Write Data Value	: 00 DATA
(CANCEL)	

← Selection complete
← Select test item
← Select test block
← Select data transfer length
← Select data transfer mode
← Select test counts
← Select play track
← Select write data
← Cancel

Figure 4.1 Select test item menu #1

- The test item to be displayed varies depending on the device. For example, the “Play Track No.” selection item is displayed only for CD-ROM device.
- On each selection item, the right side of colon means a selected function. In the example above, all block is selected for “Test Block” selection item.

(e) Select test item menu #2

Select each test item on the “Select test item menu #2” shown in Figure 4.1.

(ITM) Select test item	
(NT) NOT TEST	← Not test
(RR) RANDOM READ	← Random read test
(SR) SEQUENTIAL READ	← Sequential read test
(RW) RANDOM W/R	← Random W/R test
(SW) SEQUENTIAL W/R	← Sequential W/R test
(1B) 1 BLOCK SEQ READ	← One block read test
(PA) PLAY AUDIO	← Play audio test
(CM) COMMAND MENU	← Command test
(CANCEL)	← Cancel

Figure 4.1 Select test item menu #2

- The test items to be displayed vary depending on the device. For example, “PLAY AUDIO” test item is displayed for CD-ROM device only.

(f) Password check menu

Check password required for test execution on the “ Password check” menu shown in Figure 4.1.

(PSW) Enter password	
<input type="text"/>	← Enter password
ESC : Cancel	

Figure 4.1 Password check menu

- Do not disclose the password to the general operator.

(g) Data deletion check menu

The user is asked if the data may be deleted in the device and media by the test execution on the “Data deletion check” menu shown in Figure 4.1.

(DEL) All data in the medium will be deleted, OK ?	
(NO)	← Not Permissible
(YES)	← Permissible

Figure 4.1 Data deletion check menu

- “NO” - Data deletion is not permissible. The selected test item is canceled.
- “YES” - Data deletion is permissible.

(h) Select test block menu

Select test block on the “ Select test block” menu shown in Figure 4.1.

(BLK) Select test block	
(ALL) ALL block	← Specify all block
(IBN) Input block No.	← Specify test block range
(CANCEL)	← Cancel

Figure 4.1 Select test block menu

- When “Input block No.” is selected, the submenus shown below are displayed. Specify the block range from the submenu (Figure 4.2 and Figure 4.3).

(SBN) Input start block [0 - xxxx]	xxxx : Max. block
<input type="text" value="0"/>	← Enter test start block
ESC : Cancel	

Figure 4.2 Select test start block sub-menu

(EBN) Input end block [yyyy - xxxx]	xxxx : Max. block yyyy : Test start block
<input type="text" value="0"/>	← Enter test end block
ESC : Cancel	

Figure 4.3 Select test end block sub-menu

- If out-of-range values or illegal data such as characters are input, correct data must be input again.
- The maximum block number is different in every device and medium.

(i) Select data transfer mode menu

Select the data transfer mode on the “Select data transfer mode” menu shown in Figure 4.1.

(TRN) Select transfer mode	
(NARW_ASYN) Narrow & Asynchronous	← Narrow/asynchronous transfer
(NARW_SYNC) Narrow & Synchronous	← Narrow/synchronous transfer
(WIDE_ASYN) Wide & Asynchronous	← Wide/asynchronous transfer
(WIDE_SYNC) Wide & Synchronous	← Wide/synchronous transfer
(CANCEL)	← Cancel

Figure 4.1 Select data transfer mode menu

- This menu is not displayed for devices that support neither synchronous transfer nor wide transfer.

(j) Select test counts menu

Select the number of times of the test execution on the “Select test counts menu” shown in Figure 4.1.

(REP) Input test repeat count [1 - 99999, 0 : endless]	
<input type="text" value="0"/>	← Enter test counts
ESC : Cancel	

Figure 4.1 Select test counts menu

- When 0 is entered, limits to the test count are not imposed.
- If out-of-range values or illegal data such as characters are input, correct data must be input again.

(k) Select data transfer length menu

Set the data transfer length in the testing to a fixed length or random length on the “Select data transfer length menu” shown in Figure 4.1.

(LEN) Input block length [1 - 256, 0 : random]	
<input type="text" value="0"/>	← Enter data transfer length (block)
ESC : Cancel	

Figure 4.1 Select data transfer length menu

- When 0 is entered, the data transfer length is set to random.
- If out-of-range values or illegal data such as characters are input, correct data must be input again.

(I) Select play track menu

Select the play track on the “Select play track menu” shown in Figure 4.1.

(PLY) Select play track	
(ALL) ALL track	← Select all tracks
(ITN) Input play track No.	← Specify the test range
(CANCEL)	← Cancel

Figure 4.1 Select play track menu

- When “Input play track No.” is selected, the following submenus appear. Using these submenus (Figure 4.2 and Figure 4.3) select the play start and end tracks.

(STN) Input play start track [xx - yy]		xx : Min. track yy : Max. track
<input type="text" value="xx"/>		← Enter play start track
ESC : Cancel		

Figure 4.2 Select play start track sub-menu

(ETN) Input play end track [ss - yy]		ss : Play start track yy : Max. track
<input type="text" value="yy"/>		← Enter play end track
ESC : Cancel		

Figure 4.3 Select play end track sub-menu

- If out-of-range values or illegal data such as characters are input, correct data must be input again.
- The minimum track number and maximum track number are different in each medium.

(m) Select write data value menu

Select the write data value on the “ Select write data value menu” shown in Figure 4.1.

(WRT) Select write data value	
(00) 00 data	← Select 00 data
(INC) Increment data	← Select increment pattern data
(RND) Random data	← Select random data
(NO) Do not care	← Select no data
(CANCEL)	← Cancel.

Figure 4.1 Select write data value menu

- “Increment data” – The data pattern is like 00, 01, 02, ... ff, 00, 01. Though, the first 4 bytes and last 4 bytes of each block indicate logical block address.
- “Do not care” – The write data is not created and do not compare with read data.

(n) Warning message

When the test cannot be conducted because the controller or device condition is incorrect, the warning messages shown in Figure 4.1 to Figure 4.5 are displayed.

(ERR) CAUTION : Controller is disabled, so test can't execute.
(OK)

Figure 4.1 Controller disable warning message

- The test cannot be executed because the controller is in a disabled status.

(ERR) CAUTION : Test device not detected, so test can't execute.
(OK)

Figure 4.2 Test device unconnected warning message

- The test cannot be executed because the test target device is not connected.

(ERR) CAUTION : Failed in controller initialize. code = xx
(OK)

Figure 4.3 Initialization fail warning message

- The test cannot be executed because the controller could not be initialized. The vendor has not disclosed the definite meanings of error codes “xx” publicly.

(ERR) CAUTION : Device not ready or media not present.
(OK)

Figure 4.4 Device operation not ready/media not installed warning message

- A device is not ready for the operation. Or, media for the test is not set.

(ERR) CAUTION : Device not ready or there is no audio track.
(OK)

Figure 4.5 Device operation not ready/audio track not detected warning message

- A device is not ready for the operation. Or, audio track cannot be found.

4.2.5 PCI-SCSI (NCR) Test

4.2.5.1 Test overview

This section describes the following PCI-SCSI (NCR) test items.

Hard disk test

This test checks that a disk is normal by randomly or sequentially performing read-only operations and read/write/compare operations for the disk.

The asynchronous/synchronous mode can also be selected.

CD-ROM test

This test checks that CD-ROM is normal by randomly or sequentially performing read-only operations for the CD-ROM.

The asynchronous/ synchronous mode can also be selected.

SEQUENTIAL Device test

This test checks that a sequential device is normal by sequentially performing read-only operations and read/write/compare operations for the sequential device.

Supported devices are DAT.

The asynchronous/synchronous mode can also be selected.

Disk array test

This test checks that the disk array device is normal by randomly or sequentially performing read-only operations and read/write/compare operations for the disk array device.

Supported devices are DS1200.

The asynchronous/synchronous mode can also be selected.

4.2.5.2 Test target

Only devices defined in the product definition are to be tested.

4.2.5.3 Preparation before test

CD-ROM

- Install the data-stored CD-ROM in the device when test other than play audio test is to be executed.
- Install the voice-stored CD-ROM in the device when play audio test is to be executed.

SEQUENTIAL Device

- Install a medium in the device.
- Since data is to be written into the medium, ensure the medium is not in the Write Protection State.
- Install a medium that has completed the read/write/compare operation or has data written by the OS when read-only operation is to be executed.

Hard disk

- No preparation is required.

4.2.5.4 Setting test parameter

Select Test Device menu

Select the ID of the SCSI device to be tested in the “Select Test Device” menu shown in Figure 4.1. Do not use SCSI ID#7 as that is the SCSI controller chip ID.

(SID) Select SCSI ID		
(#00) ID.0	: QUANTUM VIKING II 9.1SCA5531 [DISK] xx..x: Device name
(#01) ID.1	: xxx.....x [yy...y] yy...y: Device type
(#03) ID.3	: xxx.....x [yy...y]
(#05) ID.5	: xxx.....x [yy...y]
(QUIT) Select End.		← Complete selection

Figure 4.1 Select Test Device menu

- The connected SCSI devices are displayed on this menu. SCSI ID#7 is the SCSI controller chip ID and cannot be used, so ID#7 is not displayed on this menu.
- Select “QUIT” to complete of selection.

Select LUN menu

Select the LUN of the SCSI device to be tested in the “Select LUN” menu shown in Figure 4.1.

(LUN) Select LUN Number.		
(L0) LUN 0	Assigned	
(L0) LUN 1	Assigned	
(L0) LUN 2	Assigned	

Figure 4.1 Select LUN menu

- This menu is displayed only for the devices that support multi LUN.

Select device menu

Select the SCSI sequential device to be tested.

The menu in Figure 4.1 is displayed only when an unknown SEQUENTIAL DEVICE is selected.

(DEV) Select Device
(CGMT)
(DAT)
(DLT)
(8mm)
(MTU)
(QIC)
(CMT)
(AIT)

Figure 4.1 Select Device menu

Select Test Mode menu

Specify the detail test mode of the device to be tested.

Some modes cannot be specified depending on the device. Refer to Figure 4.1 for the modes that can be specified for each device.

(ITEM) Select Test Mode		
(OK)		
(ACCE) Test Access Mode		[Read Access]
(SEEK) Test Seek Mode		[Sequential Access]
(BLOC) Transfer Block Size		[Random Block Size]
(SYNM) Synchronous Mode		[Synchronous<Fast>]
(TRNM) Data Transfer Mode		[Narrow]
(DRTM) Device Retry Mode		[None]
(SRTM) Software Retry Mode		[None]
(DCMP) Data Compression Mode		[UnCompression]
(FORM) Format Mode		[None]
(REPT) Test Count		[Not Specified]
(DM64) DMA Burst Length		[8 Burst]
(WRDR) Write Data Pattern		[Default]
(CANCEL)		

Figure 4.1 Select Test Mode menu

- Select “OK” to determine the access mode of this SCSI device.
- Select “CANCEL” to invalidate specification.

Table 4-1 SCSI device detail test modes

Test Mode		HDD	CD-ROM	DISK-ARRAY	SEQUENTIAL DEVICE
Test Access Mode	Write/read access		--		
	Read access	E		E	E
	*Standard access	--	E	--	--
	Write/read access (Append)	--	--	--	D
Test Seek Mode	Random access	E	E	E	--
	Sequential access				E
Transfer Block size	Random Block size	E	E	E	E
	Specified Block size				
Synchronous Mode	Asynchronous	D	D	D	D
	Synchronous				
Data Transfer Mode	Narrow	D	D	D	D
	Wide (16)				
	Wide (32)				
Device Retry Mode	None	E	E	--	--
	Specified Retry count			--	--
Software Retry Mode	None	--	E	--	--
	Specified Retry count	--		--	--
Data Compression Mode	UnCompression	--	--	--	D
	Compression	--	--	--	
Format Mode	None	E	--	E	--
	Format Execute		--	F	--
Test count	Not Specified	E	E	E	E
	Specified Test count	A	A	A	
DMA Burst Length	8 Burst		--		--
	16 Burst		--		--
	128 Burst		--		--
Write Data Pattern	Default		--		
	Increment		--		
	Alternation		--		

E: Existing

D: Mode, which can or cannot be specified depending on the SCSI controller and device

F: The Format Unit command operates simultaneously with the Test Unit Ready command.

A: Valid only when sequential access is specified

--: Mode, which cannot be specified

Blank: Mode, which can be specified

*Standard access (establish test mode for CD-ROM):

Read is done randomly during the first 10 times, and after 10 times read is done sequentially.

When read is done sequentially, it is done twice in every 256 blocks, and the 2nd data read is compared with the 1st data read.

Select Test Access Mode menu

Select the access mode of the SCSI device to be tested in the “Select Test Access Mode” menu shown in Figure 4.1 and Figure 4.2. This menu is displayed when the Test Access Mode is selected from the “Select Test Mode” menu shown in Figure 4.1.

The Select Test Access Mode menu in Figure 4.2 is displayed when CD-ROM device is selected from the Select Test Device menu.

(ACCE) Select Test Access Mode
(WR) Write/read access
(RE) Read access

Figure 4.1 Select Test Access Mode menu (1)

(ACCE) Select Test Access Mode
(ST) Standard access
(RE) Read access

Figure 4.2 Select Test Access Mode menu (2)

Password Check menu

Data in the medium is damaged when the test is executed in write/read access mode and RAID Configuration. The system asks the user to enter the password for security.

(PSW) Input Password
<input type="text"/>
ESC:Cancel

← Password input

Figure 4.1 Password Check menu

Select Test Seek Mode menu

Select the seek mode of the SCSI device to be tested. This menu is displayed only when “Test Seek Mode” is selected from the “Select Test Mode” menu shown in Figure 4.1.

(SEEK) Select Test Seek Mode
(RA) Random access
(SA) Sequential access

Figure 4.1 Select Test Seek Mode menu

Select test start/end block sub-menu

Specify the transfer block size of the SCSI device to be tested.

The following sub-menus are displayed when “Sequential access” is selected from the “Select Test Seek Mode” menu shown in Figure 4.1.

(SBN) Enter start block [Hex][0 - 1fe887]
<input type="text" value="00000000"/>
Up/Down-Cursor: Change Values ESC:Cancel

Figure 4.1 Select test start block sub-menu

(EBN) Enter end block [Hex][0 - 1fe887]
<input type="text" value="1fe887"/>
Up/Down-Cursor: Change Values ESC:Cancel

Figure 4.2 Select test end block sub-menu

- If out-of-range values or illegal data such as characters are input, correct date must be input again.
- The maximum block number is different in every device and medium.

Select Test Transfer Block Size menu

Select the transfer block size of the SCSI device to be tested. This menu is displayed only when “Transfer Block Size” is selected from the menu shown in Figure 4.1.

(BLOC) Select Test Transfer block Size
(RAN) Random Block size (SPC) Specified Block size

Figure 4.1 Select Test Transfer block size menu

Select data transfer block sub-menu

Specify the transfer block size of the SCSI device to be tested. This sub-menu is displayed only when “Specified Block size” is selected from the menu shown in Figure 4.1.

(LEN) Input Data Transfer Block[Hex][0x1 - 0x80]
<input type="text" value="001"/>
Up/Down-Cursor: Change Values ESC:Cancel

Figure 4.1 Select data transfer block sub-menu

- Input range is 1-80.
- If out-of-range values or illegal data such as characters are input, correct data must be input again.

Select Test Synchronous menu

Select the synchronous transfer mode of the SCSI device to be tested. This menu is displayed when “Synchronous Mode” is selected from the menu in Figure 4.1.

(SYNM) Select Test Synchronous
(NORM) Asynchronous
(SYNC) Synchronous[Normal]
(FAST) Synchronous[Fast]
(ULTR) Synchronous[Ultra]
(ULT2) Synchronous[Ultra2]

Figure 4.1 Select Test Synchronous menu

Select Test Transfer menu

Select the data transfer mode of the SCSI device to be tested. This menu is displayed when “Data Transfer Mode” is selected from the menu shown in Figure 4.1.

(TRNS) Select Data Transfer
(NORM) Narrow
(WD16) Wide[16bit]
(WD32) Wide[32bit]

Figure 4.1 Select Data Transfer menu

Select Device Retry Mode menu

For the SCSI HDD device to be tested, determine whether to set the number of retries if a write/read error occurs. This menu is displayed when “Device Retry Mode” is selected from the menu shown in Figure 4.1.

(DRTM) Select Device Retry Mode
(NONE) None
(RETR) Specified Retry count

Figure 4.1 Select Device Retry Mode menu

Select retry count sub-menu

Specify the number of retries when the SCSI HDD device to be tested causes an error. This sub-menu is displayed only when “Specified Retry count” is selected from the menu shown in Figure 4.1.

(RETR) Input retry count [1 - 255]
<input type="text" value="001"/>
ESC:Cancel

Figure 4.1 Select retry count sub-menu

- Input range is 1-255.
- If out-of-range values or illegal data such as characters are input, correct data must be input again.

Select Software Retry mode

For the SCSI CD-ROM device to be tested, determine whether to set the number of retries if a write/read error occurs. This menu is displayed when “Software Retry Mode” is selected from the menu shown in Figure 4.1.

(SRTM) Select Software Retry Mode
(NONE) None
(SRET) Specified Retry count

Figure 4.1 Select Software Retry Mode menu

Select software retry count sub-menu

Specify the number of retries when the SCSI CD-ROM device to be tested causes an error. This sub-menu is displayed only when “Specified Retry count” is selected from the menu shown in Figure 4.1.

(SRET) Input software retry count [1 - 255]
<input type="text" value="001"/>
ESC:Cancel

Figure 4.1 Select software retry count sub-menu

- Input range is 1-255.
- If out-of-range values or illegal data such as characters are input, correct data must be input again.

Select Test Data Compression menu

Select the data compression mode of the SCSI sequential device to be tested. This menu is displayed when “Data Compression Mode” is selected from the menu shown in Figure 4.1.

(DCMP) Select Test Data Compression
(UNCM) UnCompression
(COMP) Compression

Figure 4.1 Select Test Data Compression menu

Format confirmation menu

Data in the medium is damaged when the test is executed in format disk mode. The system asks if the user accepts data deletion. The confirmation message in Figure 4.1 is displayed when “Format Mode” is selected from the menu shown in Figure 4.1.

(DEL) Format	
All data will be lost from the medium..Are you sure?	
<input type="button" value="NO"/>	<input type="button" value="YES"/>

Figure 4.1 Confirmation message

Select Test Count Mode menu

Set the number of times the test is to be executed for the target SCSI device. This menu is displayed when “Test Count” is selected from the menu shown in Figure 4.1.

(REPT) Select Test Count Mode
(NOT) Not Specified
(CNT) Specified Test count

Figure 4.1 Select Test Count Mode menu

Select test count sub-menu

Specify the number of times the test is to be executed for the target SCSI device. This sub-menu is displayed only when “Specified Test count” is selected from the menu shown in Figure 4.1.

(REPT) Input test count[1 - 255]
<input type="text" value="001"/>
ESC:Cancel

Figure 4.1 Select test count sub-menu

- Input range is 1-255.
- If out-of-range values or illegal data such as characters are input, correct data must be input again.

DMA Burst Length Menu

Select the DMA transfer burst length.

This menu is displayed when "DMA Burst Length" is specified from the menu shown in Figure 4.1.

(DMA64) DMA Burst Length	
(T8)	8 Burst
(T16)	16 Burst
(T128)	128 Burst

Figure 4.1 Select DMA Burst Length Menu

Select Write Data Menu

For the SCSI HDD device, select the write data pattern.

(WRDP) Write Data Pattern	
(DEF)	Default
(INC)	Increment
(ALT)	Alternation

Figure 4.1 Write Data Menu

- One byte incremental data, two bytes incremental data, four bytes incremental data and one byte random data are repeated, when Default is selected.
- One byte incremental data is repeated, when Increment is selected.
- 64 bit all 0 and all 1 data are repeated, when Alternation is selected.

Memory error message

The system informs the user that the test cannot be executed because memory is not large enough for the test.

(ERR) Error Information	
There is no enough memory for the test. Test can not be executed. Push enter key.	
<input type="button" value="Ok"/>	

Figure 4.1 Confirmation message

Disk array DS1200

The Select Test Type menu in Figure 4.1 is displayed when DS1200 device is selected from the "Select Test Device" menu shown in Figure 4.93.

(LTEM) Select Test Type	
(TST)	Test
(CANCEL)	

Figure 4.1 Test Type Menu

- When "Test" is selected in Figure 4.1, the "LUN menu" is displayed as shown in Figure 4.1.

4.2.6 PCI-SCSI (QLG) Test

4.2.6.1 Test overview

This section describes the following PCI-SCSI (QLG) test items.

See Table 4-1 for the relationship between test items and the corresponding devices.

Table 4-1 Test Items for SCSI Devices

	HDD	CD-ROM
Random read test	X	X
Sequential read test	X	X
Random W/R test	X	-
Sequential W/R test	X	-
One block read test	-	X
Play audio test	-	X

Legends X: Selectable
 -: Not selectable

Random read test

Reads data for the block selected at random to check that the device operates normally.

Sequential read test

Reads and compares data for the block specified by the user to check that the device operates normally.

Random W/R test

Writes, reads, and compares data for the block selected at random to check that the device operates normally.

NOTE: All the data in the device is lost.

Sequential W/R test

Writes, reads, and compares data for the block specified by the user to check that the device operates normally.

NOTE: All the data in the device is lost.

One block read test

Reads data for each block twice and compare each read data to check that the device operates normally.

Play audio test

Plays the track specified by the user to check that the audio player operates normally.

4.2.6.2 Test target

Only devices defined in the product definition are to be tested.

4.2.6.3 Preparation before test

Hard disk

No preparation is required.

CD-ROM

Install the data-stored CD-ROM in the device when test other than play audio test is to be executed. Install the voice-stored CD-ROM in the device when play audio test is to be executed.

4.2.6.4 Setting test parameter

The test parameter is set with some menus. The menus are available to specify a test controller, test target device, and test item in combination.

Input procedure in each test item

Table 4-1 lists the menu displayed when each test item is selected. Figure 4.1 shows the display-related diagram of each menu. The following section provides more information of each menu in the table.

Table 4-1 Menus displayed when test items are selected

Menu	Test item					
	Random read test	Sequential read test	Random W/R test	Sequential W/R test	One block read test	Play audio test
(a) Select test controller menu	X	X	X	X	X	X
(b) Select test device menu	X	X	X	X	X	X
(c) Select test LUN menu	X	X	X	X	-	-
(d) Select test item menu #1	X	X	X	X	X	X
(e) Select test item menu #2	X	X	X	X	X	X
(f) Password check menu	-	-	X	X	-	-
(g) Data deletion check menu	-	-	X	X	-	-
(h) Select test block menu	X	X	X	X	X	-
(i) Select data transfer mode menu	X	X	X	X	X	-
(j) Select test counts menu	X	X	X	X	X	X
(k) Select data transfer length menu	X	X	X	X	X	-
(l) Select play track menu	-	-	-	-	-	X
(m) Select write data value menu	-	-	X	X	-	-
(n) Warning message	*	*	*	*	*	*

Legends

X: Displayed
 -: Not displayed.
 *: May be displayed depending on the device condition.

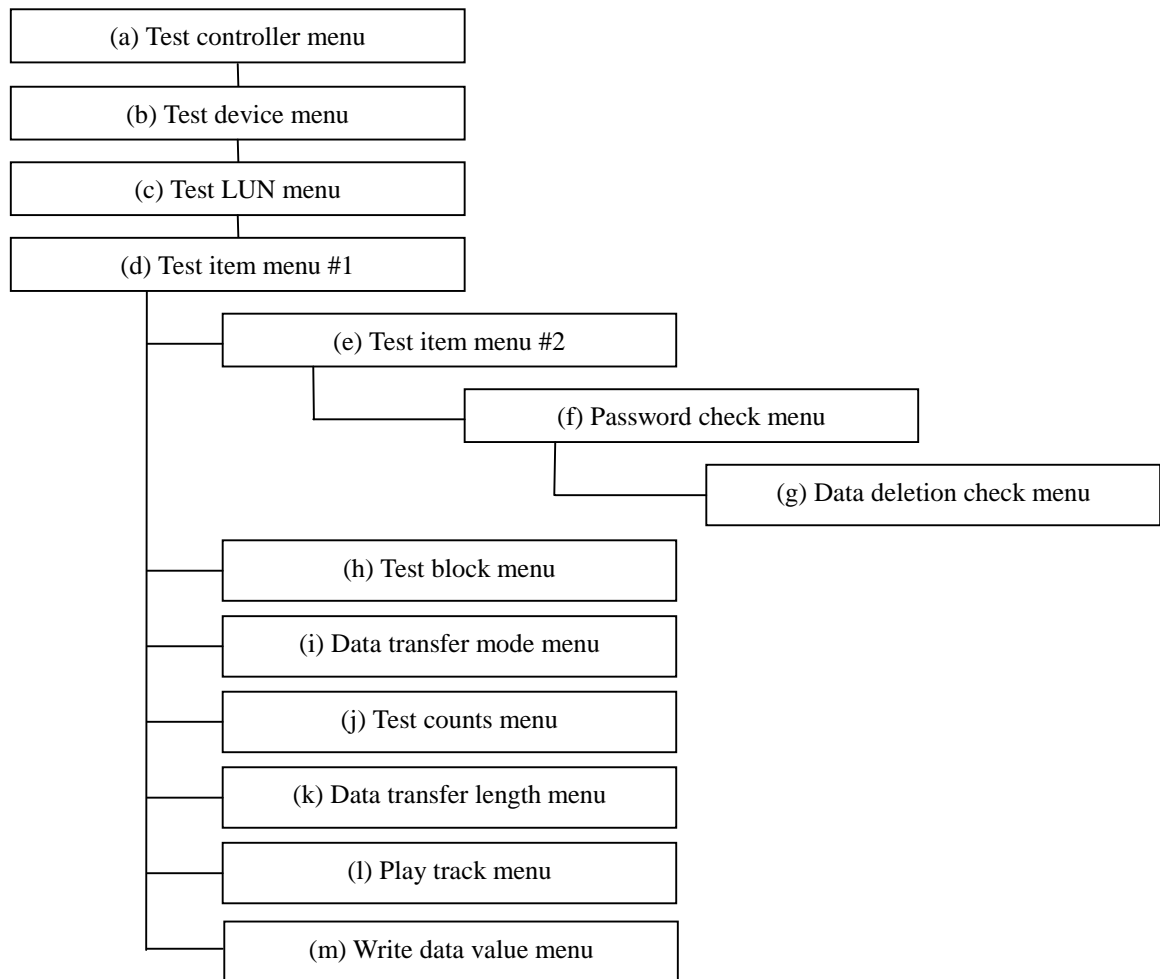


Figure 4.1 Display-related diagram of each menu

Description of each menu of Select test item

(a) Select test controller menu

Selecting SCSI test from the “Select test controller” menu displays the “PCI Slot Select” menu shown in Figure 4.1. In this menu, select the test controller.

(SEL) PCI SLOT SELECT	
(END) Select end	← Selection complete Select test controller
(STD1) Standard-SCSI ch1	
(STD2) Standard-SCSI ch2	
(#1) Slot 1	

Figure 4.1 Select test controller menu

- The menu displayed varies depending on the controller connection status. The above figure is a display sample. In this example, there are 2 standard SCSI controllers on the motherboard and 1 SCSI controller on the PCI board slot #1.

(b) Select test device menu

On the “Select test device menu” shown in Figure 4.1, select the test device.

(ID) Select test device	
(#00) ID 0 : HDD : NOT TEST : NEC DKU-374	Select device
(#01) ID 1 : ---- : NOT TEST :	
(#02) ID 2 : CD-ROM : PLAY AUDIO : SONY CD-ROM CDU-76S 1.0a	
(#03) ID 3 : MO : NOT TEST :	
(#04) ID 4 : ---- : NOT TEST :	
(#05) ID 5 : ---- : NOT TEST :	
(#06) ID 6 : ---- : NOT TEST :	
(#07) ID 7 : HOST : SCSI controller: AIC-7870	← Select end
(END) Select end	

Figure 4.1 Select test device menu

- The menu displayed varies depending on the device connection status. The above figure is a display sample.
- SCSI ID, device type, test name, and device name are displayed for each device. In the example above, the CD-ROM device is connected to SCSI ID 2 and Play audio test is selected.
- To execute command test, select SCSI controller with this menu.

(c) Select test LUN menu

On the “Select test LUN menu” shown in Figure 4.1, select the test LUN.

(LUN) Select test LUN	
(LUN0) DISK ARRAY : NOT TEST	: #0 #1 #2 #3 #4
(LUN1) DISK ARRAY : RANDOM READ	: #6 #7 #8 #9 #10
(LUN2) NO ASSIGN : NOT TEST	:
(LUN3) NO ASSIGN : NOT TEST	:
(LUN4) HOT SPARE : NOT TEST	: #22
(LUN5) NO ASSIGN : NOT TEST	:
(LUN6) -----	:
(LUN7) -----	:
(END) Select end	

← Selection complete

Figure 4.1 Select test LUN menu

- This menu is displayed only for the device that supports multi LUN. If it is not necessary to select the LUN for the test, this menu is not displayed.
- The LUN type, test item, and FRU (or disk numbers) are displayed for each LUN. In the example above, Random read test is selected for the LUN 1 (FRU: #6-#10).

(d) Select test item menu #1

Select each test item on the “Select test item menu #1” shown in Figure 4.1.

(TST) Select test item	
(END) Select end	
(ITM) Test Item	: SEQUENTIAL READ
(BLK) Test Block	: ALL BLOCK
(LEN) Block Length	: RANDOM LENGTH
(TRN) Data Transfer Mode	: NARROW & SYNC
(REP) Test Repeat	: ENDLESS
(PLY) Play Track NO.	: ALL TRACK
(WRT) Write Data Value	: 00 DATA
(CANCEL)	

← Selection complete
← Select test item
← Select test block
← Select data transfer length
← Select data transfer mode
← Select test counts
← Select play track
← Select write data
← Cancel

Figure 4.1 Select test item menu #1

- The test item displayed varies depending on the device. For example, the “Play Track No.” selection item is displayed only for CD-ROM device.
- On each selection item, the right side of the colon specifies a selected function. In the example above, all block is selected for “Test Block” selection item.

(e) Select test item menu #2

Select each test item on “Select test item menu #2” shown in Figure 4.1.

(ITM) Select test item	
(NT) NOT TEST	← Not test
(RR) RANDOM READ	← Random read test
(SR) SEQUENTIAL READ	← Sequential read test
(RW) RANDOM W/R	← Random W/R test
(SW) SEQUENTIAL W/R	← Sequential W/R test
(1B) 1 BLOCK SEQ READ	← One block read test
(PA) PLAY AUDIO	← Play audio test
(CANCEL)	← Cancel

Figure 4.1 Select test item menu #2

- The test items displayed vary depending on the device. For example, “PLAY AUDIO” test item is displayed for CD-ROM device only.

(f) Password check menu

Check password required for test execution on the “Password check menu” shown in Figure 4.1.

(PSW) Enter password	
<input type="text"/>	← Enter password
ESC : Cancel	

Figure 4.1 Password check menu

- Do not disclose the password to the general operator.

(g) Data deletion check menu

The user is warned that the data may be deleted in the device and media by the test execution on the “Data deletion check” menu shown in Figure 4.1.

(DEL) All data in the medium will be deleted, OK ?	
(NO)	← Not Permissible
(YES)	← Permissible

Figure 4.1 Data deletion check menu

- “NO” - Data deletion is not permissible. The selected test item is canceled.
- “YES” - Data deletion is permissible.

(h) Select test block menu

Select test block on “Select test block” menu shown in Figure 4.1.

(BLK) Select test block	
(ALL) ALL block	← Specify all block
(IBN) Input block No.	← Specify test block range
(CANCEL)	← Cancel

Figure 4.1 Select test block menu

- When “Input block No.” is selected, the submenus shown below are displayed. Specify the block range from the submenu (Figure 4.2 and Figure 4.3).

(SBN) Input start block [0 - xxxx]	xxxx : Max. block
<input type="text" value="0"/>	← Enter test start block
ESC : Cancel	

Figure 4.2 Select test start block sub-menu

(EBN) Input end block [yyyy - xxxx]	xxxx : Max. block yyyy : Test start block
<input type="text" value="0"/>	← Enter test end block
ESC : Cancel	

Figure 4.3 Select test end block sub-menu

- If out-of-range values or illegal data such as characters are input, correct data must be input again.
- The maximum block number is different in every device and medium.

(i) Select data transfer mode menu

Select the data transfer mode on the “Select data transfer mode” menu shown in Figure 4.1.

(TRN) Select transfer mode	
(NARW_ASYN) Narrow & Asynchronous	← Narrow/asynchronous transfer
(NARW_SYNC) Narrow & Synchronous	← Narrow/synchronous transfer
(WIDE_ASYN) Wide & Asynchronous	← Wide/asynchronous transfer
(WIDE_SYNC) Wide & Synchronous	← Wide/synchronous transfer
(CANCEL)	← Cancel

Figure 4.1 Select data transfer mode menu

- This menu is not displayed for devices that support neither synchronous transfer nor wide transfer.

(j) Select test counts menu

Select the number of times of the test execution on the “Select test counts” menu shown in Figure 4.1.

(REP) Input test repeat count [1 - 99999, 0 : endless]	
<input type="text" value="0"/>	← Enter test counts
ESC : Cancel	

Figure 4.1 Select test counts menu

- When 0 is entered, limits to the test count are not imposed.
- If out-of-range values or illegal data such as characters are input, correct data must be input again.

(k) Select data transfer length menu

Set the data transfer length in the testing to a fixed length or random length on the “Select data transfer length” menu shown in Figure 4.1.

(LEN) Input block length [1 - 256, 0 : random]	
<input type="text" value="0"/>	← Enter data transfer length (block)
ESC : Cancel	

Figure 4.1 Select data transfer length menu

- When 0 is entered, the data transfer length is set to random.
- If out-of-range values or illegal data such as characters are input, correct data must be input again.

(l) Select play track menu

Select the play track on the “Select play track” menu shown in Figure 4.1.

(PLY) Select play track	
(ALL) ALL track	← Select all tracks
(ITN) Input play track No.	← Specify the test range
(CANCEL)	← Cancel

Figure 4.1 Select play track menu

- When “Input play track No.” is selected, the following submenus appear. Using these submenus (Figure 4.2 and Figure 4.3) select the play start and end tracks.

(STN) Input play start track [xx - yy]	
xx	xx : Min. track yy : Max. track
← Enter play start track	
ESC : Cancel	

Figure 4.2 Select play start track sub-menu

(ETN) Input play end track [ss - yy]	
yy	ss : Play start track yy : Max. track
← Enter play end track	
ESC : Cancel	

Figure 4.3 Select play end track sub-menu

- If out-of-range values or illegal data such as characters are input, correct data must be input again.
- The minimum track number and maximum track number are different in each medium.

(m) Select write data value menu

Select the write data value on the “Select write data value” menu shown in Figure 4.1.

(WRT) Select write data value	
(00) 00 data	← Select 00 data
(INC) Increment data	← Select increment pattern data
(RND) Random data	← Select random data
(NO) Do not care	← Select no data
(CANCEL)	← Cancel.

Figure 4.1 Select write data value menu

- “Increment data” – The data pattern is 00, 01, 02, ... ff, 00, 01. However, the first 4 bytes and last 4 bytes of each block indicate logical block address.
- “Do not care” – The write data is not created and does not compare with the read data.

(n) Warning message

When the test cannot be conducted because the controller or device condition is incorrect, the warning messages shown in Figure 4.1 to Figure 4.5 are displayed.

(ERR) CAUTION : Controller is disabled, so test can't execute.
(OK)

Figure 4.1 Controller disable warning message

- The test cannot be executed because the controller is in a disabled status.

(ERR) CAUTION : Test device not detected, so test can't execute.
(OK)

Figure 4.2 Test device unconnected warning message

- The test cannot be executed because the test target device is not connected.

(ERR) CAUTION : Failed in controller initialize. code = xx
(OK)

Figure 4.3 Initialization fail warning message

- The test cannot be executed because the controller could not be initialized. The vendor has not disclosed the definite meanings of error codes “xx” publicly.

(ERR) CAUTION : Device not ready or media not present.
(OK)

Figure 4.4 Device operation not ready/media not installed warning message

- A device is not ready for the operation. Or, media for the test is not set.

(ERR) CAUTION : Device not ready or there is no audio track.
(OK)

Figure 4.5 Device operation not ready/audio track not detected warning message

- A device is not ready for the operation. Or, audio track cannot be found.

4.2.7 PCI-FCP(AGL) Test

4.2.7.1 Test overview

This section explains the following PCI-FCP(AGL) test items.
See **Error! Reference source not found.** relationship between test items and the corresponding devices.

Table 4.1 Test Items for FCP SCSI Devices

	HDD	Disk array
Internal loopback test	-	-

Random read test	X	X
Sequential read test	X	X
Random W/R test	X	-
Sequential W/R test	X	-

Legends X: Selectable
 -: Not selectable

Disk array : DS1200F, iStorage 2000, iStorage4000 and FC60 disk array

Internal loopback test

Using the loopback feature of the PCI-FCP(AGL) board, this test checks if the loopback transmission of a packet is done normally in the board.

Random read test

Read data for the block selected at random to check that the device operates normally.

Sequential read test

Read and compare data for the block specified by the operator to check that the device operates normally.

Random W/R test

Write, read, and compare data for the block selected at random to check that the device operates normally.

<<Note>>

All the data in the device is lost.

Sequential W/R test

Write, read, and compare data for the block specified by the operator to check that the device operates normally.

<<Note>>

All the data in the device is lost.

4.2.7.2 Test target

Table 4.1 Test target boards

CODE	Device name
A5158	single port 2X FC-AL (tachlite(1G))

HDD

Supported device is disk in FC10.

Array disk

.
Supported devices are DS1200F, iStorage 2000, iStorage 4000 and FC60.

4.2.7.3 Preparation before test

Internal loopback test

Mount the test target boards shown in Table 4.1 Test target boards.

Note: Disconnect the cables from the boards before executing an internal loopback test.

HDD and Array disk

No preparation is required.

4.2.7.4 Setting test parameter

Test parameter is set with some menus. The menus are available to specify a test controller, test target device, and test item in combination.

Input procedure in each test item

Table 4.1 lists the menu displayed when each test item is selected. Table 4.1 shows display-related diagram of each menu. The following section provides more information of each menu in the table.

Table 4.1 Menus displayed when test items are selected

Menu	Test item				
	Internal loopback test	Random read test	Sequential read test	Random W/R test	Sequential W/R test
(a) Select test controller menu	X	X	X	X	X
(b) Select test device menu	X	X	X	X	X
(c) Select LUN	.	X	X	X	X
(d) Select test item menu #1	X	X	X	X	X
(e) Select test item menu #2	X	X	X	X	X
(f) Password check menu	.	.	.	X	X
(g) Data deletion check menu	.	.	.	X	X
(h) Select test block menu	.	X	X	X	X
(i) Select test counts menu	.	X	X	X	X
(j) Select data transfer length menu	.	X	X	X	X
(k) Select write data value menu	.	.	.	X	X
(l) Warning message	*	*	*	*	*

Legends X: Displayed
 -: Not displayed.
 *: May be displayed depending on the device condition.

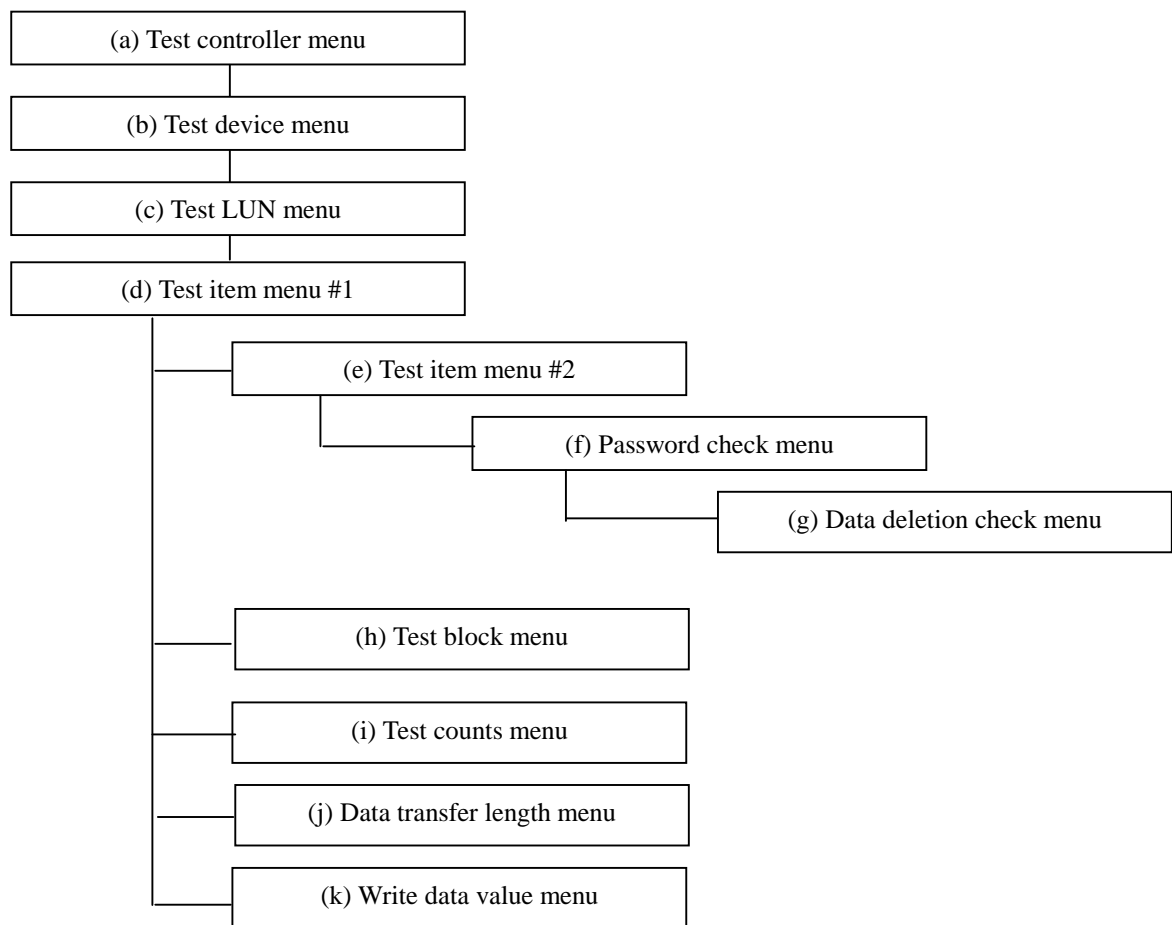


Figure 4.1 Display-related diagram of each menu

Description of each menu of Select test item

(a) Select test controller menu

When selecting FCP test, “(a) Select test controller menu” shown in **Error! Reference source not found.** is displayed. In this menu, select the test controller.

(SEL) PCI SLOT SELECT	
(END)	Select end
(001)	Slot 001

← Selection complete
← Select test controller

Figure 4.1 Select test controller menu

- The menu to be displayed varies depending on the controller connection status. The above figure is a display sample. In this example, there is FC controller on the PCI board slot #001.

(b) Select test device menu

On “(b) Select test device menu” shown in **Error! Reference source not found.**, select the test device.

(ID) Select test device	
(#000) ID 0 : HOST : controller : Tachyon_TL Rev.0b	} select device
(#016) ID 16 : HDD : RANDOM READ: SEAGATE ST336704FC HP07	
(#018) ID 18 : HDD : NOT TEST : SEAGATE ST318304FC HP07	
(END) Select end	← Select end

Figure 4.1 Select test device menu

- The menu to be displayed varies depending on the device connection status. The above figure is a display sample.
- SCSI ID, device type, test name and device name are displayed for each device. In the example above, HDD device is connected to SCSI ID 16 and 18, and Random read test is selected for the SCSI ID 16.

(c) Select test LUN menu

On “(c) Select test LUN menu” shown in **Error! Reference source not found.**, select the test LUN.

(LUN) Select test LUN	
(LUN0) RAID1 : NOT TEST :	} select LUN
(LUN1) RAID5 : RANDOM READ :	
(LUN2) NO ASSIGN : NOT TEST :	
(LUN3) NO ASSIGN : NOT TEST :	
(LUN4) HOT SPARE : NOT TEST :	
...	...
(END) Select end	← Selection complete

Figure 4.1 Select test LUN menu

- This menu is displayed only for the device that supports multi LUN. If it is not necessary to select the LUN for the test, this menu is not displayed.
- The LUN type, test item and FRU (or disk numbers) are displayed for each LUN. In the example above, Random read test is selected for the LUN.

(d) Select test item menu #1

Select each test item on “(d) Select test item menu #1” shown in **Error! Reference source not found..**

(TST) Select test item	
(END) Select end	← Selection complete
(ITM) Test Item : RANDOM READ	← Select test item
(BLK) Test Block : ALL BLOCK	← Select test block
(LEN) Block Length : RANDOM LENGTH	← Select data transfer length
(REP) Test Repeat : ENDLESS	← Select test counts
(WRT) Write Data Value : 00 DATA	← Select write data
(CANCEL)	← Cancel

Figure 4.1 Select test item menu #1

- The test item to be displayed varies depending on the device.
- On each selection item, the right side of colon means a selected function. In the example above, all block is selected for “Test Block” selection item.

(e) Select test item menu #2

Select each test item on “(e) Select test item menu #2” shown in **Error! Reference source not found..**

(ITM) Select test item	[controller]
(NT) NOT TEST	← Not test
(LB) LOOP BACK	← Loopback test
(CANCEL)	← Cancel

(ITM) Select test item	[HDD]
(NT) NOT TEST	← Not test
(RR) RANDOM READ	← Random read test
(SR) SEQUENTIAL READ	← Sequential read test
(RW) RANDOM W/R	← Random W/R test
(SW) SEQUENTIAL W/R	← Sequential W/R test
(CANCEL)	← Cancel

(ITM) Select test item	[Array disk]
(NT) NOT TEST	← Not test
(RR) RANDOM READ	← Random read test
(SR) SEQUENTIAL READ	← Sequential read test
(CANCEL)	← Cancel

Figure 4.1 Select test item menu #2

(f) Password check menu

Check password required for test execution on “(f) Password check menu” shown in **Error! Reference source not found.**

(PSW) Enter password
<input type="text"/>
ESC : Cancel

← Enter password

Figure 4.1 Password check menu

- Do not disclose the password to the general operator.

(g) Data deletion check menu

The operator is asked that if the data may be deleted in the device and media by the test execution on “(g) Data deletion check menu” shown in Figure 4.1.

(DEL) All data in the medium will be deleted, OK ?
(NO)
(YES)

← Not Permissible
← Permissible

Figure 4.1 Data deletion check menu

- “NO” - Data deletion is not permissible. The selected test item is canceled.
“YES”- Data deletion is permissible.

(h) Select test block menu

Select test block on “(h) Select test block menu” shown in Figure 4.1.

(BLK) Select test block
(ALL) ALL block
(IBN) Input block No.
(CANCEL)

← Specify all block
← Specify test block range
← Cancel

Figure 4.1 Select test block menu

- When “Input block No.” is selected, the submenus shown below are displayed. Specify the block range from the submenu (Figure 4.2and Figure 4.3).

(SBN) Input start block [0 - xxxx]
<input type="text" value="0"/>
ESC : Cancel

xxxx : Max. block
← Enter test start block

Figure 4.2 Select test start block sub-menu

(EBN) Input end block [yyyy - xxxx]
<input type="text" value="0"/>
ESC : Cancel

xxxx : Max. block yyyy : Test start block
← Enter test end block

Figure 4.3 Select test end block sub-menu

- If out-of-range values or illegal data such as characters are input, correct data must be input again.

- The maximum block number is different in every device and medium.

(i) Select test counts menu

Select the number of times of the test execution on “(j) Select test counts menu” shown in Figure 4.1.

(REP) Input test repeat count [1 - 99999, 0 : endless]	
<input type="text" value="0"/>	← Enter test counts
ESC : Cancel	

Figure 4.1 Select test counts menu

- When 0 is entered, limits to the test count are not imposed.
- If out-of-range values or illegal data such as characters are input, correct data must be input again.

(j) Select data transfer length menu

Set the data transfer length in the testing to a fixed length or random length on “(k) Select data transfer length menu” shown in Figure 4.1.

(LEN) Input block length [1 - 256, 0 : random]	
<input type="text" value="0"/>	← Enter data transfer length (block)
ESC : Cancel	

Figure 4.1 Select data transfer length menu

- When 0 is entered, the data transfer length is set to random.
- If out-of-range values or illegal data such as characters are input, correct data must be input again.

(k) Select write data value menu

Select the write data value on “(u) Select write data value menu” shown in Figure 4.1.

(WRT) Select write data value	
(00) 00 data	← Select 00 data
(INC) Increment data	← Select increment pattern data
(RND) Random data	← Select random data
(NO) Do not care	← Select no data
(CANCEL)	← Cancel.

Figure 4.1 Select write data value menu

- “Increment data” – The data pattern is like 00, 01, 02, ... ff, 00, 01. Though, the first 4 bytes and last 4 bytes of each block indicate logical block address.
- “Do not care” – The write data is not created and do not compare with read data.

(I) Warning message

When the test cannot be conducted because the controller or device condition is incorrect.

(ERR) CAUTION : Controller is disabled, so test can't execute.
(OK)

- The test cannot be executed because the controller is in a disabled status.

(ERR) CAUTION : Test device not detected, so test can't execute.
(OK)

- The test cannot be executed because the test target device is not connected.

(ERR) CAUTION : Device not ready or no media present.
(OK)

- A device is not ready for the operation. Or, media for the test is not set.

(ERR) CAUTION : Initialize frame manager timeout.
(OK)

- Initialization of TachyonTL's frame manager is timeout.

(ERR) CAUTION : Initialize frame manager error.
(OK)

(INF) ERR_INF : FM_Status = xxxxxxxx
(OK)

- The timeout occurred in initialization of frame manager of TachyonTL.
xxxxxxx : Value of frame manager status register